creative

SIMON BLANC

From Supinfocom, France to Blur Studios, California in a matter of just two years; we chat with Simon Blanc about life at Blur...

TUTORIALS
Speed Sculpting: Creatures of the Night, plus more!

INTERVIEWS
Simon Blanc, Rudolf Herczog & Little Red Robot

ARTICLES
Mercenaries 2 "Ca$h" directed by Shilo

GALLERIES
Chris Carter, Olivier Cannone, Den Fox, plus more!

MAKING OF
Enforcer by Olli Sorjonen, plus more!

Editorial

Welcome to Issue 39 – not long till Christmas now! You may have seen an article that we published in this here magazine on the short movie, *Moutons* (Sheep), back in March 2007 … Well, this month we welcome back one of the genius members from that collaboration for an interview – the one and only, **Simon Blanc**! You'll have seen his superb *Pirates of the Caribbean* inspired image around the CG communities recently (this month's cover), so find out all about the artist behind the artwork in this issue (PAGE 009). Simon is currently working for Blur Studios in California, so we could all learn a little from him – plus he's simply a great guy who we all love talking to here at 3DCreative, so sit back and relax with some stunning artwork and a little banter. **Rudolf Herczog** is our second artist interview this month; he's a freelance artist who creates the most awe-inspiring 3D environments, specialising in sci-fi and futuristic art creations – find our more on PAGE 021. We also get to know **Little Red Robot,** based in San Francisco, a little better this month in our latest studio interview. LRR is a company creating fun and creative content using only the very latest in visual effects and post-production – check out more about these guys on PAGE 031.

Moving onto what you guys all love: tutorials! This month our super tutorial series, kicked off by 3DCreative's resident artist, **Richard Tilbury**, splits its five separates ways as our different artists carry on the series in the different software packages: 3ds Max, Maya, Cinema 4D, LightWave and Softimage XSI. So let's give a group hug to three of our old time favourites, **Luciano Iurino** (tackling the Softimage XSI version), **Niki Bartucci** (handling the Cinema 4D version) and **Roman Kessler** (on LightWave), as well as give a warm welcome to our newest tutorial writer for 3DCreative, **Tiong-seah Yap**, who has taken the Maya version into his very capable hands. This month: Texturing the Scene – Part 1 (PAGE 103). As is usual now for 3DCreative, we have our two ZBrush tutorials, the first of which is our regular Speed Sculpting article featuring **Alex Oliver** and **Rafael Grassetti** (PAGE 055), and the second is of course part 3 of **Rafael Ghencev**'s series in which he sculpts a 'steroid-pumped guy'. Rafael's really outdone himself this time, the final render is simply outstanding! Check out PAGE 067 and you'll see why we've been so impressed this month. Our ZBrush artists have also kindly provided some movies to accompany their tutorials, so be sure take some time out to enjoy those; they're all downloadable from within this very magazine – look out for the Free Movies icons and click to download. Easy!

Our Making Ofs this month have kindly been created for us by **Chris Carter** and **Olli Sorjonen**. Chris discusses his latest image and the challenges he faced incorporating his crab into a scene (PAGE 079), and Olli Sorjonen tells us all about the creation of his recent character, the "Enforcer" (PAGE 087).
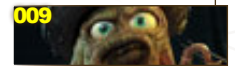
Enjoy this month's offerings – see you next month for more! ED.

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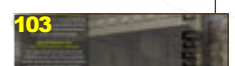
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Free Stuff!

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3dcreative

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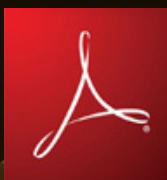
SETTING UP YOUR PDF READER

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: DOWNLOAD!

To view the many double-page spreads featured in 2DArtist magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:

1. Open the magazine in Reader;
2. Go to the VIEW menu, then PAGE DISPLAY;
3. Select TWO-UP CONTINUOUS, making sure that SHOW COVER PAGE is also selected.
That's it!

CONTRIBUTING ARTISTS

Every month, many artists around the world contribute to 3DCreative Magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist Magazines, please contact:

**lynette@zoopublishing.com**

AGED & WEATHERED

The start of this tutorial series saw Richard Tilbury tackle the opening 3 chapters. Richard has now handed the Cinema 4D, Lightwave, Maya & Softimage XSI versions over to our latest tutorial artists; these wonderful people will be responsible for creating the remainder of the series. Richard will be continuing with the 3ds Max version.
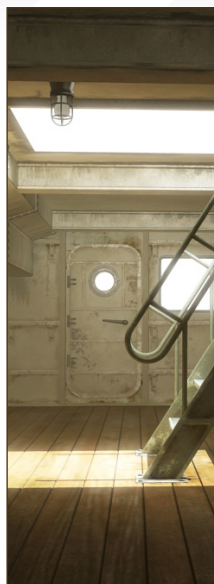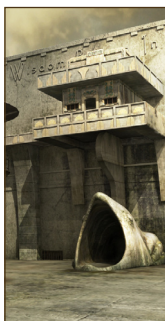
RICHARD TILBURY

Has had a passion for drawing since being a couple of feet tall. He studied fine art and was eventually led into the realm of computers several years ago. His brushes have slowly been dissolving in white spirit since the late 90s and now, alas, his graphics tablet has become their successor. He still sketches regularly, balancing his time between 2D and 3D.

http://www.richardtilburyart.com
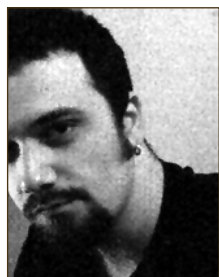
LUCIANO IURINO

Started back in '94 with 3D Studio on MS-DOS as a modeller/ texture artist. In 2001, he co-founded PM Studios and still works there as Lead 3D Artist. He also works freelance for magazines, web portals, GFX & video game companies. He recently left the 3ds Max environment to move on to XSI.

http://www.pmstudios.it
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ROMAN KESSLER

A freelance 3D artist in Germany. In '93 he made his first 3D model using a shareware 3D software for DOS that was very limited. He got addicted & started with LightWave in '97. Since 2005 he has worked professionally as a freelancer. Besides client-based work, he also works on personal animation projects.
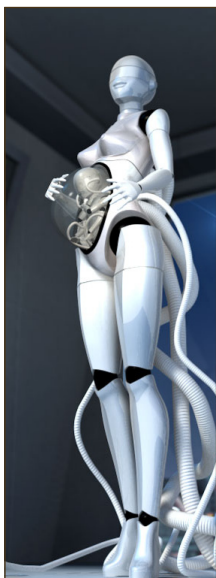
http://www.dough-cgi.de

NIKI BARTUCCI

A freelance 3D modeller in Italy. She started working in the field of computer graphics in 2000 as an illustrator & web designer. In 2003 she started using 3D software, such as C4D & 3ds Max. In that year she worked on *ETROM - The Astral Essence*, an RPG video game for PC, developed by PM Studios.

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niki@pikoandniki.com

WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, Making Of writers and more. For more information, send a link to your work here: **lynette@zoopublishing.com**

RUDOLF HERCZOG

A freelance digital artist in Halmstad, Sweden. He's been working with 3D since '99 and his work has been featured in numerous publications, such as 3DTotal's *Digital Art Masters*, Ballistic Publishing's *Exposé* and *3D World* Magazine. He primarily works with architecture and sci-fi/fantasy scenery, using Cinema 4D, Maxwell Render and Photoshop as his main tools.

http://www.rochr.com / rudy@rochr.com
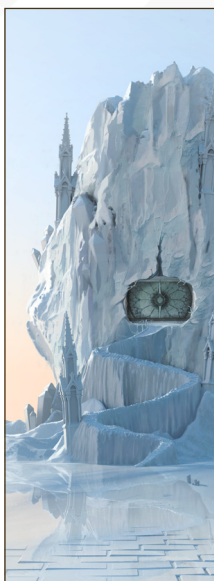
SIMON BLANC

Currently employed as a scene assembler for Blur Studio, California. He's been working in the CG industry now for the past 2 years, following his graduation from Supinfocom in France.

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RAFAEL GHENCEV

A 25-year old Character Artist, based in São Paulo, Brazil. He has had a passion for art since he was a young boy and saw his grandfather painting and drawing. He has since been searching to increase his skills and knowledge, and his passion for sculpture and drawing drives him to balance his studies between traditional art and 3D.

http://www.rafestuff.blogspot.com

rghencev@yahoo.com
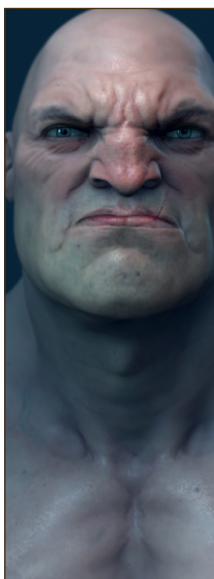
HASRAF DULULL

Hasraf's career started as a level artist on motocross racing games and interactive media, before moving into CGI and visual effects where he worked as animation and post-production director. He's currently an experienced marketing artist at developer/publisher, Codemasters. He's also working on several personal projects.
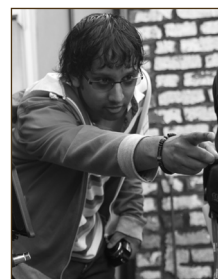
http://www.littleredrobot.com

Image by Rudolf Herczog

ALEX OLIVER

A traditional sculptor who moved to digital art 2 years ago. He is now a digital sculptor and creature/character concept artist who also teaches ZBrush and traditional sculpting at a 3D school. Alex's work can be seen in many forums around the world, and he has worked on projects such as sea monsters for National Geographic, and Golden Axe with Gentle Giant Studios.

www.alexoliver.art.br / mail@alexoliver.art.br

RAFAEL GRASSETTI

A Brazilian artist born in 1988. He decided to study sculpture about 3 years ago, and when he discovered 3D he became fascinated with it. Since then he's been learning everything he can about art, and is a self-taught artist specialising in 3D modelling, character design, digital sculpting, texturing and assets for feature film and TV projects.

http://grassetti.cgsociety.org/gallery/

rafagrassetti@gmail.com
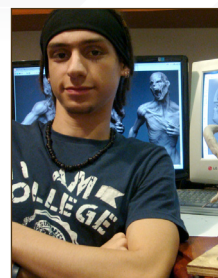
OLLI SORJONEN

A self-taught artist born 34 years ago. He's done a variety of work, ranging from art for console and mobile games, to lighting, rendering and animation for various purposes. He's currently working on a 3D animated feature film as a supervisor, and in his spare time he likes to create 3D characters and read books. He is currently based in Helsinki, Finland.

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CHRIS CARTER

Has been working in 3D since 2005 with the USAF at Hill AFB UT, USA. He works primarily in 3ds Max and Maya, but also uses Headus, Roadkill, ZBrush and Bodypaint regularly. He's currently a student of 3D Animation and VFX at the Academy of Art University and aspires to one day work as a creature modeller for film or games.

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Image by Simon Blanc

CALL FOR SUBMISSIONS

DIGITAL ART MASTERS :VOLUME 4

CALL FOR SUBMISSIONS
Deadline: 30th November, 2008 - 11:59PM GMT

Following in the success of our first three books in the 'Digital Art Masters' series, we would like to announce the 'Call for Entries' for the forth book in the series 'Digital Art Masters: Volume 4'.

The first 3 volumes of 3DTotal's book series, have featured some of the best 3d & 2d artwork from such artists as Marek Denco, Levente Peterffy, Laurent Pierlot, Philip Straub, James Paick, Jonny Duddle, Benita Winckler, Matt Dixon and Damien Canderlé. The one thing that set the 'Digital Art Masters' series apart from other gallery/catalogue books was the fact that we wanted to show the readers how the images were created, so each artist wrote a breakdown overview to accompany their piece in the book.

'Digital Art Masters: Volume 4' will again be showcasing some of the finest 2d and 3d images from talented artists across the globe. Initial submissions need to be of your final image only to enable entrance into the selection process. Chosen artists then need to supply an additional text overview with 'making of' and 'work in progress' images. See samples at bottom of page to give you a good idea of
what is required.

A full Submissions Guide, Schedule and Calendar for all submissions is availble from this web link:

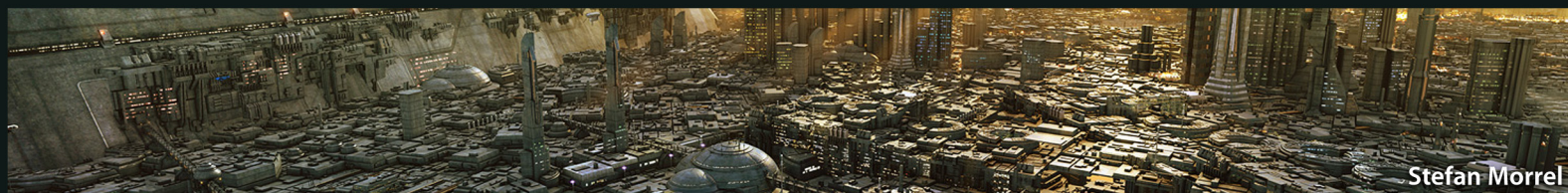http://www.3dtotal.com/damv4_callforsubmissions/

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SIMON BLANC

He wouldn't think twice before disturbing his work colleagues to lighten the mood, but there is also a dedicated and hard working side to Simon Blanc. We chat to him about working at Blur Studios and find out how it all started for the French-born artist.

SIMON BLANC

Hi Simon! It's nice to speak to you again; the last time was when we did an article on the Moutons, that collaborative short you did with Viven Cabrol and Arnaud Valette. So to kick start things off this time, could you introduce yourself and tell us how you ended up doing 3D?

I'm Simon Blanc, a little frenchie who comes from the south of France. I grew up there and studied economy until I was 19 ... but that was never a passion for me. Since childhood, I'd spent my time drawing on the back of my class papers and waiting for the chance to do artistic studies, and so after general school, I tried to enter into a visual communication school and somehow I made it! Here was where my love of pictures, animation and colours really began. I was doing flash animations, websites, and melding a lot of different techniques and medias together - artistically, it was a great time for me! I first discovered 3D during these years. I remember that some motion graphic clip I was watching contained stylised 3D and I was

amazed by the possibilities that 3D was giving to these animations. So I decided to try it myself! I began to learn 3ds Max alone, to integrate my renders to my websites, or for class works. By the end of that school, I had the choice between going to work or trying a new school. As I saw the web going down in France at this time, I told myself "Why you don't you just go forward and really learn 3D?"

I have to thank my parents for the support they gave me at this time (and before ... and always!). They helped me to follow my dreams without ever questioning them. One of my friends, Damien Tournaire, was passionate about 3D, and was always talking about a

particular school: Supinfocom. So we decided to try the contest to enter the school, and a year later we were both there!

Looking back, I'm really grateful for all the things I did during my time at the visual communication school (touching all kinds of media, developing my creativity). It was great and it gave me to skills I need to get into Supinfocom!

From Supinfocom to Blur Studios in California in a matter of two years is quite impressive. Could you tell us what your position is there and what you're currently working on?
Yes, I'm still impressed by being a part of the Blur studio crew so quickly! I had a lot of luck; right after Supinfocom, I tried to do freelance work, but I was really too young and it was so hard to find serious clients. So I went to Spain to work in a little studio, doing lighting on TV adds, and also a series for Disney.

Working in a different country was a good test to see if I felt good far away from my home and my family, and it was also gave me plenty of time to prepare my visa papers, which were very difficult to get my hands on!

Falling into Blur one year after school was really a great luck, but it was also a giant challenge for me. I'm actually a scene assembler here at Blur; the job consists of doing a bit of everything in the 3D pipeline, except animation, rigging, and FX (even if I do it for my personal projects). So basically I'm in charge of environment modelling, texturing/shaders, lighting, passes to the final post production. It's a very interesting job because I'm still doing a lot of different things, and I learn in a lot of ways. I always wanted to be able to do everything by myself

in a production, and here I learn to push my knowledge of every aspects of making a movie farther!

We are mainly working on games cinematics at Blur, but we are also working on short films, adds, rides (I began my work here working on *The Simpsons* ride for the Universal Studios parks in Florida and Los Angeles!) and we are also preparing features movies ... but I can't really talk about that!

So what's an average day like for you at Blur?
First, waking up without thinking "God, I don't want to go to work today" [Laughs]. People at Blur are so talented and willing to share their knowledge, it's always great to come into that giant room where everybody works together. They really care about the employees and that makes you feel at home - which is good when you're fighting to meet deadlines and you have to spend whole days in the studio!

A normal day here... sharing and learning, not only technically, but also humanly! We all come from a lot of different countries here - I think all the parts of the earth are represented - so it's a lot of fun to work together, especially on the projects we get here!

So what's the best and most useful thing that you have learnt from your time at Blur? Has

there been a time where you've had to share your knowledge with anyone and if so who?
The most useful thing I have learned here at Blur is how to be professional. We have a short amount of time to do a huge amount of work,

so I've quickly learned to do the essential jobs first and put the hard work into the right places. I think it's a great way to learn and to improve your skills.

I've learned a lot from sharing with the other guys - everybody shares their knowledge, their points of view about the works we get in the studio. Artistically it's absolutely great, because no one's got the same style or the same tastes,

so when you gather all that together it's amazing the talent you can grow in here.

"No More Wine" has to be one of my favourite pieces of work this year. Could you tell us the

idea behind this character and how long it took you to create it?

"No More Wine" is typical of my pictures ... totally unexpected! I was just messing with ZBrush and the great ZSpheres when the idea came. At the beginning I just had the idea of a little Davy Jones-like character, eating his soup like a child - the other ideas came during the creation process. First was the spaghetti idea; I thought it was fun for this character to melt them with his tentacles, because of the shape similarity. After this I got the idea to play with food, putting sushi on his plate, a giving a kind of weird relationship between him and his food! And last came all the details: the little octopus to add fun to the scene and also to keep the weird relation of cannibalism with the food; a second plate, almost invisible, but enough to put this feeling of a romantic diner between the viewer and the character; and finally, the wine

that ended up giving me the title, first because the glasses were empty, but also because the situation could be the result of an abuse of alcohol [Laughs]!

Do you have any further plans for this character or are you working on a completely new piece?
About the "No More Wine" picture, no, I'm not going to work anymore on it. At least, not unless Disney want to do a series with him!

What I'm doing right now, is a big tutorial/interview with the Pixologic team about this picture process. I hope it will be useful for everybody! I'm also already working on a new picture, which I hope going to be as fun as this one for the viewers.
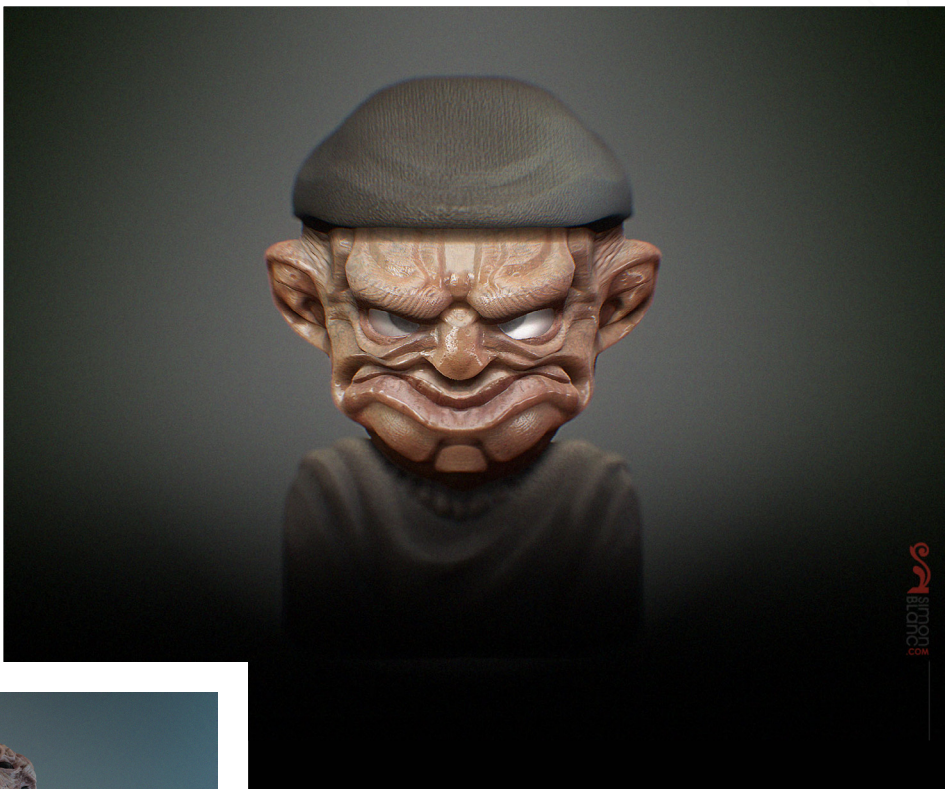
You're only 26 years of ages and already working for one of the best studios in the world - at this time, the world is pretty much open to you. So by the time your 36, where do you see yourself and what would you like to have accomplished?
[Laughs] Only 36? I really don't know. What I hope is to work with good artists and continue working on good projects and visiting big cinema companies. I'm really interested in working on feature movies because I've

never done that and I'm curious to discover a new kind of production. I also want to try a lot of different graphic styles; I feel I could have a lot of fun doing them all!

My final goal is to be a freelancer and be called to work for "my" art. I would like to do children's books or a series with my graphic style, or live projections for music concerts or ... everything! [Laughs] I need ten lives to do all I want!

You mentioned cinema in the list of things you would like to do. Is there any particular genre you would prefer to work on, or is it all appealing to you?

I would love to work on a feature movie, something original. I like a lot all the stuff we can see nowadays on the screens, it's really powerful and visually perfect, but I miss originality (I know it's hard to find). Movies like the *City of Lost Children* or *Mirror Mask* have got some of the best universes for me, and when you look at them you clearly travel, you discover new environments, weird feelings, colours ... Everything is adapted for these worlds and I love that!
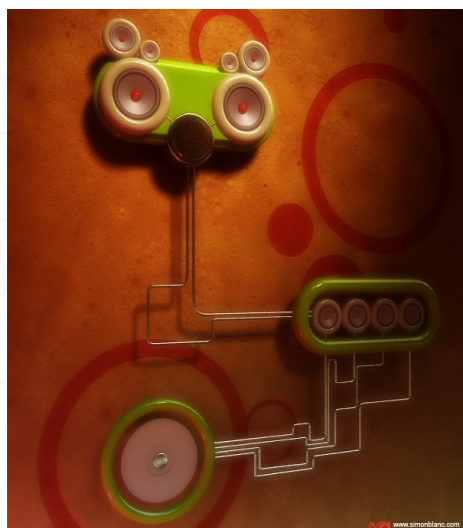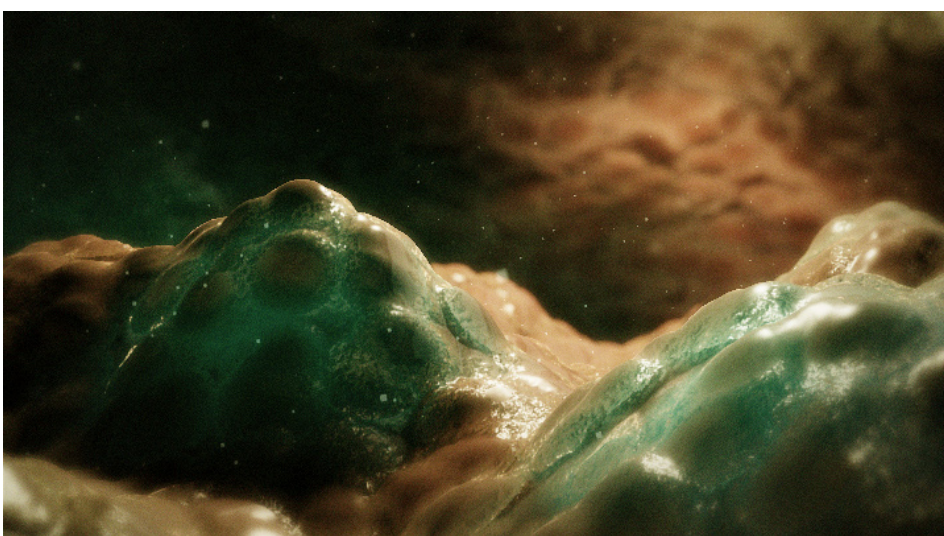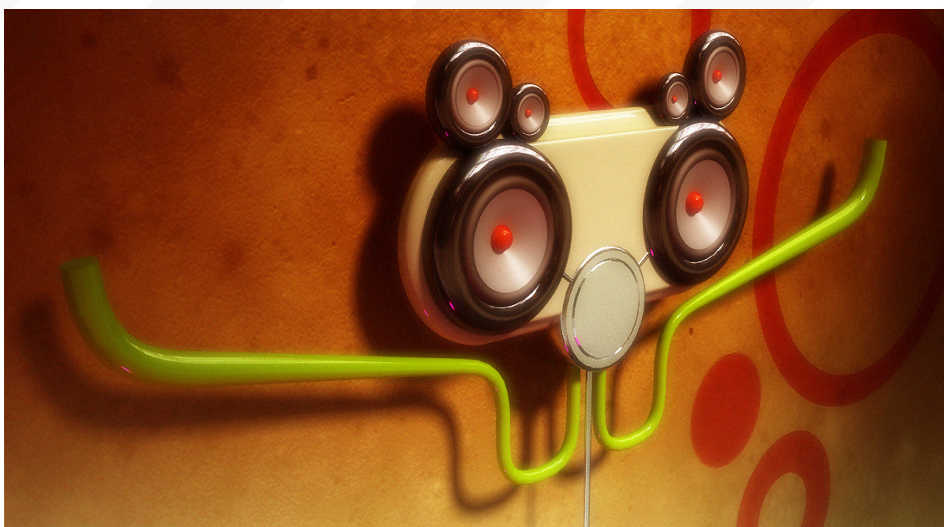
That's the thing I like a lot with 3D feature movies such as *Finding Nemo*: the entire universe is completely adapted to work around the world of the heroes. Every object, mechanism, the world itself - they are all replaced by something linked to the story. I love when even the most simple story allows the creators to build a completely new world, as crazy as possible, to pull the viewer into a new dimension!

So to answer, I love every genre and would love to work on different styles (realism, cartoon, motion graphic etc). If the story is interesting and allows us to experiment, then that's great!

Aside from basking in the glorious Californian sun, what sort of things do you get up to when you're not slaving away behind a computer screen?

When I'm not pasted in front of my screen, I love hiking in mountains with my wife and dog and taking photographs. It's very "brain resting" and allows me to come down off the virtual worlds that I'm in all day long.

Of course, parties with my friends are a good way to forget work and crunch times, but I'm never too far away from the office, and even when I'm not working, I study everything around me - people, shapes and colours!

Well it has been a real pleasure chatting with you and I wish you all the best at Blur and in your future endeavours. One last question before we wrap things up. You know those little USB rocket launchers that you can buy, that sit next to you computer? If you could have one of those, who in your studio would you most like to fire it at and why?

I think I would fire it at everybody around me [Laughs]. I like disturbing my friends a lot when they work, particularly when they're looking
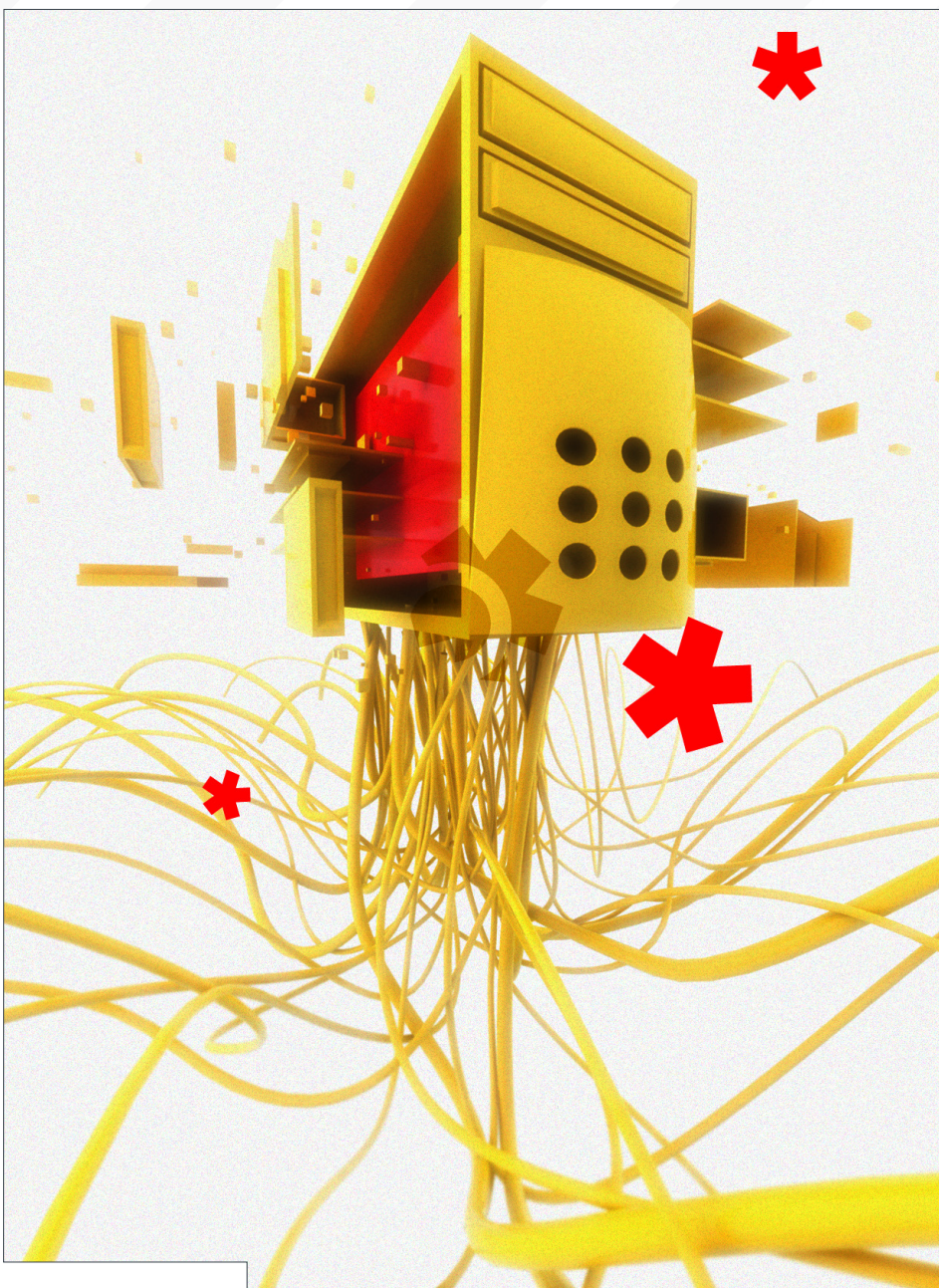
tired! I would probably start World War III with all the different nationalities that I have close to me [Laughs]! By the way, that's one of the things I like here: being with a lot of people from different countries and being able to joke about everything, even with the cultural differences!
 Everybody stay open!

SIMON BLANC

For more work by this artist please visit:

http://www.simonblanc.com

Or contact them at:

six@simonblanc.com

Interviewed by: Chris Perrins

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If you haven't heard of Rudolf Herczog aka "Rochr" then you will have probably seen his work, either in one of the forums he frequents or in a high quality publication. He has achieved a recognisable style of his own, while still creating images in some of the most popular genres.

RUDOLF HERCZOG

Now then Rudolf, I think you've been around in the CG game even longer than me! I started 3dtotal.com back in 1999 and if I remember correctly, you were one of the first artists in the gallery. If you had to sum up your life from then to now, what have been the highlights and milestones of your career?
Yeah, we've both been around for quite a while now, haven't we? [Laughs].

It's really hard to pick something specific - so much has happened since I first started out. The privilege of having been featured in numerous books and magazines, as well as getting some really nice job offers, are some of the definite highlights. As far as milestones are concerned, the switch to Cinema4D was probably the biggest. It has completely changed the way I work.
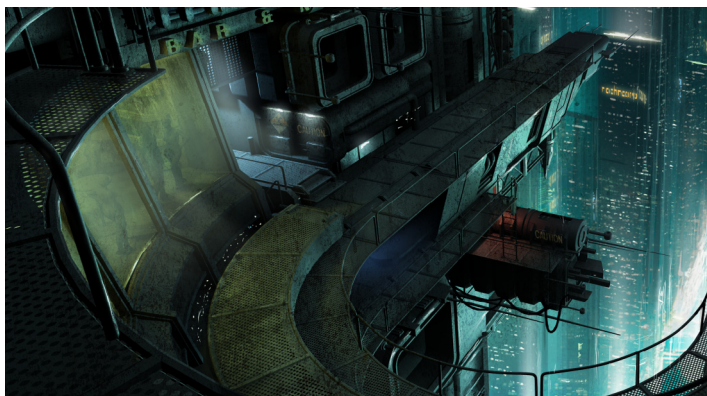
Do you notice any changes after you get published? Would you say that artists can expect to get more work offers etc with this kind of exposure?
Absolutely. I've had numerous jobs where the employers have spotted the work in magazines, books, online galleries, forums and so on.

A lot of people know you as "Rochr" which is your forum posting name. Do you think CG forums have helped you a lot with your art? Or are they more useful as a place to gain exposure?
For me personally, CG forums have been a tremendous help in so many ways. I'd probably not be working with CG if it weren't for the forums and all the great people I've meet over the years. Their knowledge and support has really helped me every step of the way.

I most likely wouldn't have that many clients either if it weren't for the exposure you can get thanks to forums. I think it's a superb way of easily being able to show your work to a very large audience.

It's good that you recommend artists to use the numerous forums around. Do you have any tips for getting the most out of them? Or it is a straightforward case of "post your work and read the comments"?

I believe that to really benefit from a forum, you'll need to interact with people. There's just so much knowledge, and so many tips and tricks out there that will improve your work.

Interacting with other artist is also a huge help when you hit a creative dry spell. We all have them and being around art and discussing it is a definite helper for boosting the creativity.

You have an obvious love of futuristic environments, but they all tend to look a little run down and polluted. Why do you go for this style?

Some of my big inspirational sources are movies and games such as *Blade Runner* or *Nomad Soul*. They all have that certain atmosphere I love, mainly thanks to that dirty, worn down environment.
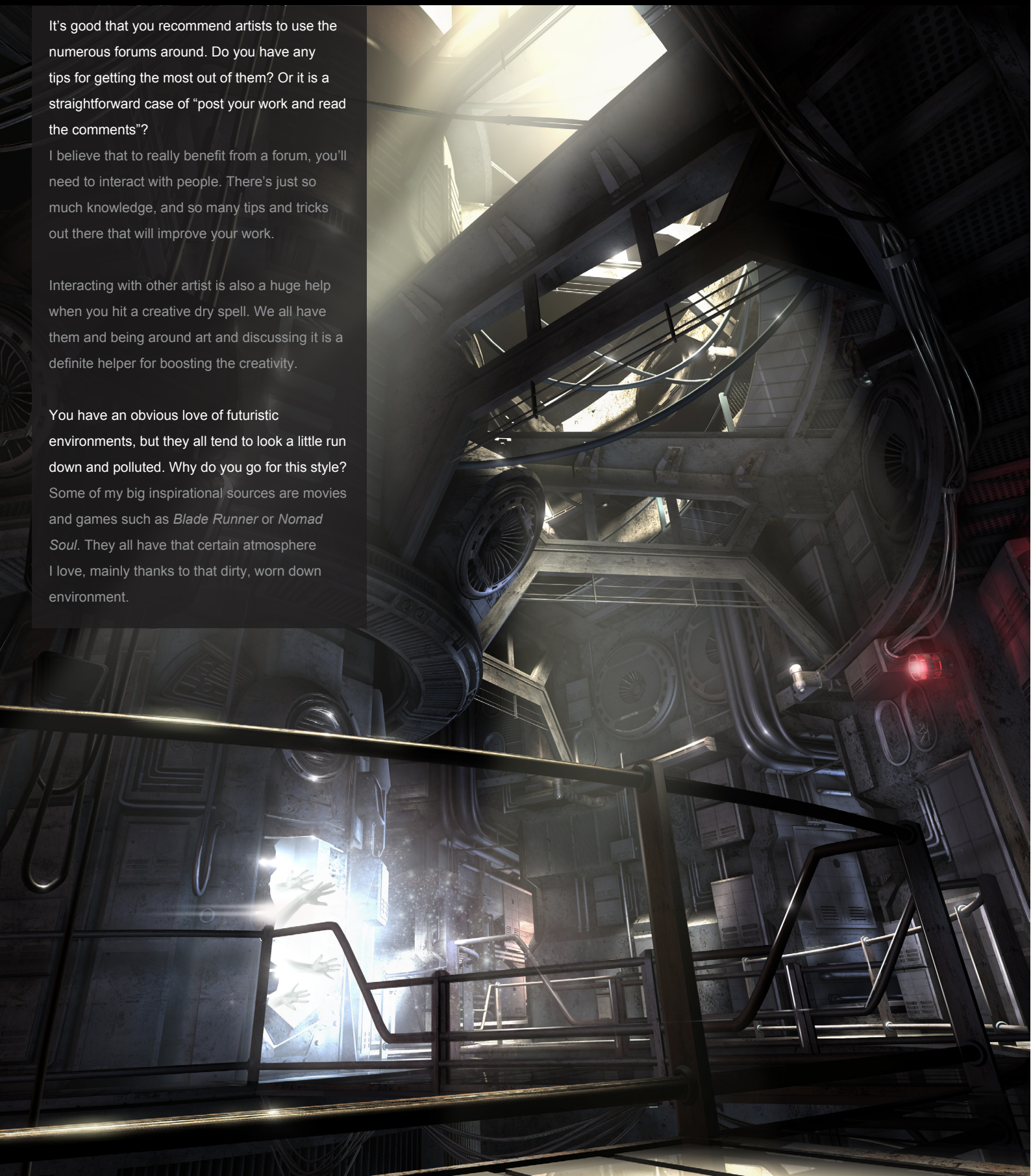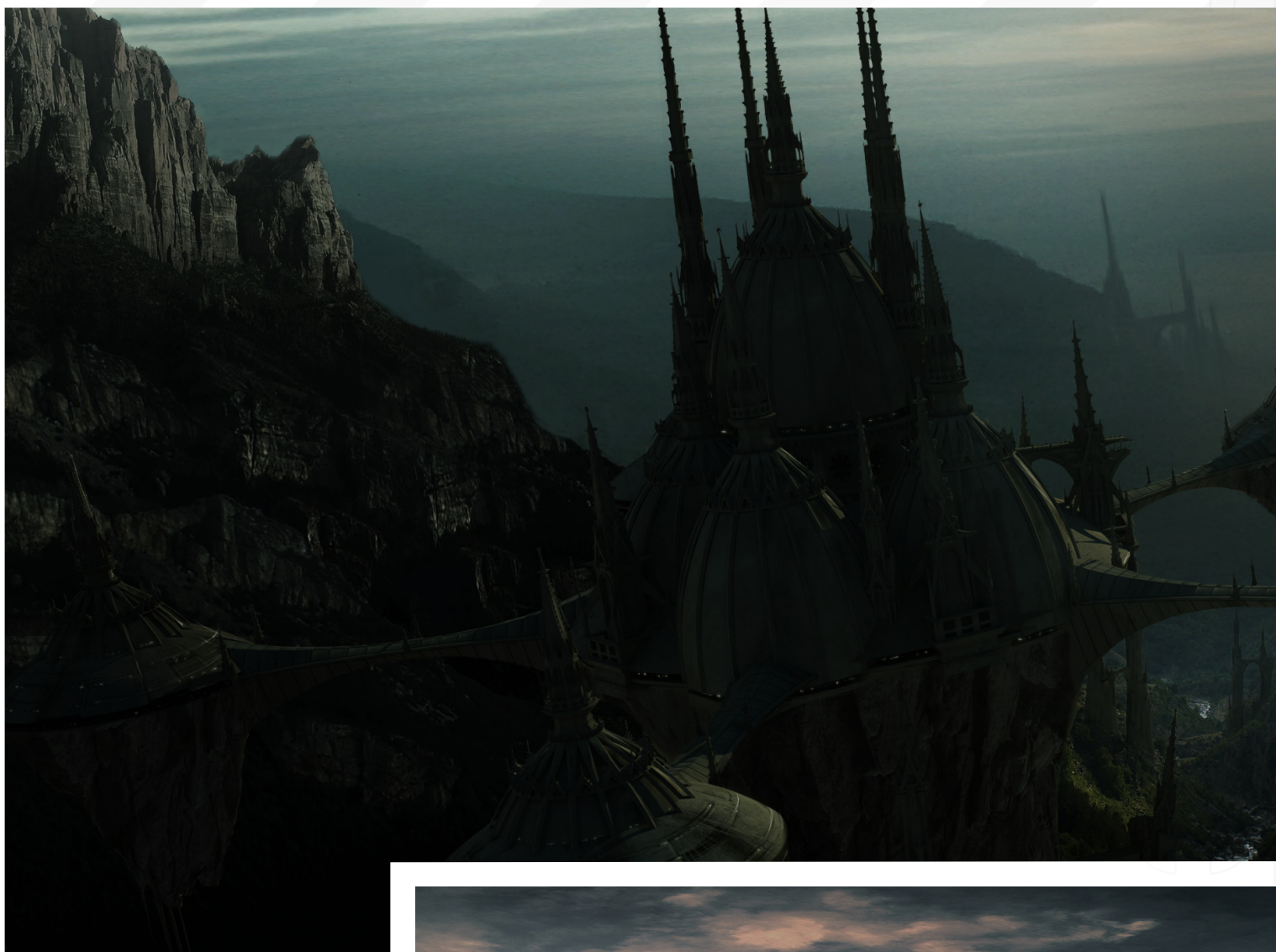
This kind of scenery allows me to combine both sci-fi and my interest in old architecture with some industrial elements, to depict places that look familiar even though they don't exist. Rather than building shiny, high-tech environments, I create a future grown old.

I think most artists would agree that this approach can make the most interesting images! For a typical image how to you approach it? Do you have a clear idea of what it will look like before you start and in what order do you tackle the different parts?

For the most part, I have a rough base idea thought out before I get started on the modelling/ The order may vary depending on the scene, but I normally start out with a key model and work my way out from that, moving from

the base architecture and the larger and smaller props, to details and the stuff furthest from the cam. Once that's done I go with textures and lighting before continuing with what I have in Photoshop.

I've noticed that you've stayed away from some of the biggest, most popular software packages over the years - why is this?
As cheap as it may sound, I don't like to pay more than I have to for 3D software if I can get the job done anyway.

With Bryce, I was only looking for something to kill a few hours with. I wasn't planning on continuing with 3D, so I didn't want to spend a smaller fortune on a big package. For this purpose Bryce was ideal as it was cheap and

The Infinite Oz

easy to learn, which is just as important as the cost. In the end, that program really got me interested in 3D, as I found out that you could create some pretty amazing things with it once you started digging deeper. It was almost the same story when I decided it was time to move forward and switch software. After trying out several demos and trial versions, I ended up with Cinema4D. C4D's straightforward learning curve suited me perfectly, and it also comes with a much nicer price tag than most 3D software.

I think it's great that artists start off with small simple packages and learn them thoroughly, before they dive in with something with a millions buttons and option; I myself started with Infini-D on a Mac. With C4D, does it do everything you need straight out of the box or do you use any other plug-ins?
The basic package pretty much cover everything I need for the moment. I've never really used many plug-ins; for some reason I've always managed to do more with less! The only plug-in

I'm currently using is the Maxwell renderer. I got it to speed up parts of the lighting process, and it does the job just great.

What particular areas of your CG images do you spend the most time working on in order to achieve your fantastic results?
One of the areas I've always paid a lot of attention to is the atmosphere. It's so easy to screw up even the best of models if the scene lacks the proper mood. I can easily spend more time getting this right for a scene than on the modelling itself. Another key area is postwork and dirt. Even though I normally start out with less than clean materials, I spend a large amount of time adding dirt and subtile imperfections to every scene.Imperfections don't necessarily have to be that visible, but they make a huge difference to the end result.

What can we expect to see from you next? Do you think you may sway from the sci-fi path someday?
I don't think I'll ever move away from sci-fi. I may work with other genres, but in the end, sci-fi has been a part of my life for as long as I can remember and I'll always return to that.

As for the future, I've started experimenting with matte painting these past few months. I'm still very new with the stuff and I'm not used to working that much with photos, but it's highly enjoyable. Not that I'm planning on leaving 3D, but I always like to try out new techniques, and hopefully I'll be able to develop my drawing skills in the process!

Well whatever path you take Rudy we will look forward to seeing the results! It's been great chatting with you; I've been a fan of your art for many years, as I am sure are many of the readers. All the best!

It was a pleasure, Tom - thanks a lot!

Rudolf Herczog

For more work by this artist please visit:

http://www.rochr.com

Or contact them at:

rudy@rochr.com

Interviewed by: Tom Greenway

"WE WANTED A STUDIO THAT ENCOURAGES TEAM MEMBERS TO PUSH THE ENVELOPE AND THINK OUTSIDE THE BOX"

Little Red Robot are a company that strives for perfection and are willing to think outside the box. We chat with one of the guys behind the red robot, Hasraf Dulull, to find out a bit more about this intriguing company.

LRR
LITTLE RED ROBOT

Hi Hasraf. Now you're currently a Director at Little Red Robot. Could you tell us a bit about this company and what the motives were behind setting it up?

Little Red Robot is a directorial collaboration between myself, Seth Shukovsky and several talented artists. LRR was set up by Seth back in 2003, where it handled motion graphic and broadcast spots for several clients such as Nike. I came onboard about two years ago and we both kick- started our directing collaboration by doing music videos, which had high-end content with very creative art direction.

LRR has since evolved into a company that creates fun and creative content and utilises the latest visual effects and post production techniques, rather than just churning the same old material. We wanted a studio that encourages team members to push the envelope and think outside the box. But we also wanted to set up a directing collective between us, which would allow me to work on cool content created by us, as well as work for other facilities/studios when we wanted.
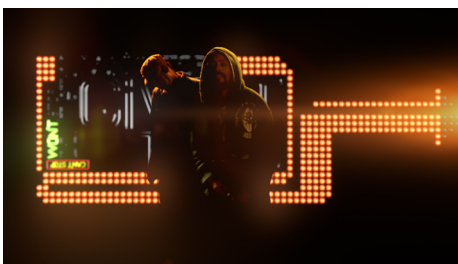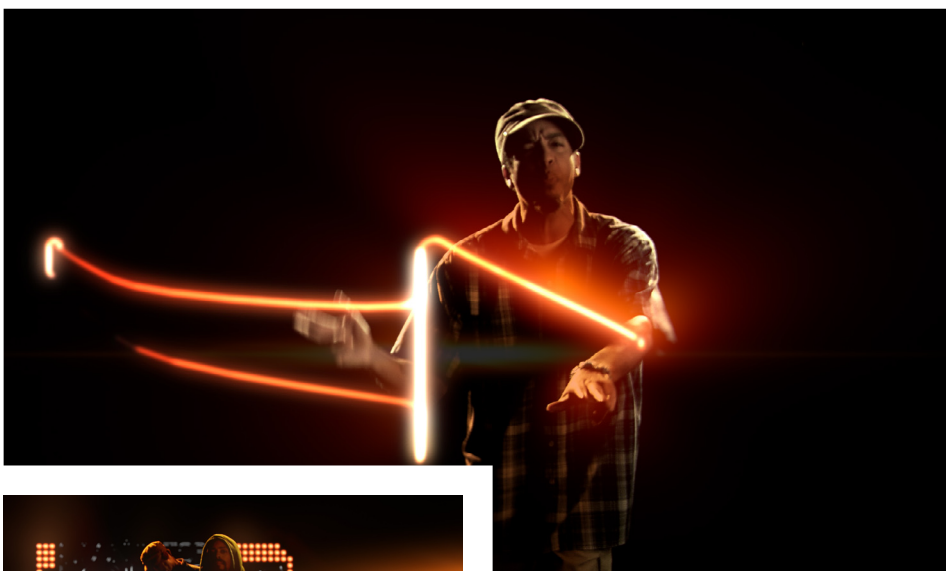
So how did this partnership come about? Had you worked with Seth before or were you headhunted?

I'd worked with Seth before as a technical director on the all-CG music video "HURT", where we worked closely with Nvidia and used the project to test out the Gelato Technology. So it was from that project that we formed a relationship, which later turned into the directing partnership at LRR.

You've worked on feature films, game cinematics and even music videos, but which areas do you prefer to work in?

Well, each of them have their great points. For example, working on a feature film involves perfection and a strong attention to detail, whereas in commercials/music videos it's about delivering high quality to a tight deadline. So learning to optimise your workflow to accommodate constant client changes is very important, and something I've learned to value when working on broadcast-type projects or game cinematics. I get involved in the CG pipeline of things (coming from a TD background before moving into compositing), so when I take all the good points from those post-industry areas and combine them ... you get a LRR workflow.
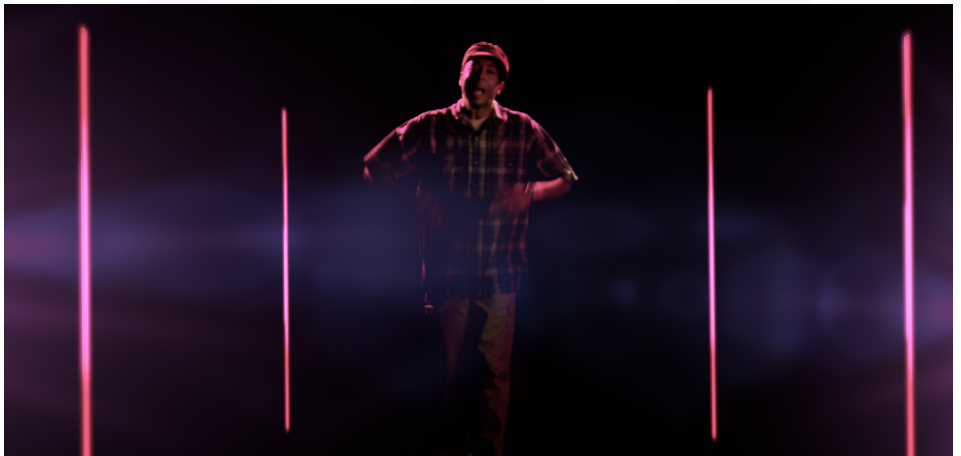
With such an impressive portfolio of clients, which project are you most proud of and why? And which has been the most challenging?

The one's I'm most proud of are the music videos I direct with Seth. We both work so hard together and apply our knowledge and experiences to make the end results amazing experiences that are both technically and creatively challenging. For example, we are currently in post on a music video we shot with the latest 4K RED camera. Pushing the camera projection visual effects techniques inside The Foundry's Nuke to tell our visual story, we shot around San Francisco-Oakland-New York and had a technically challenging, but very fun and rewarding experience.

Has there been one project that once finished you thought: "Damn, I could have done that differently"?

All of them! Every project we do we always end up wishing we'd had more time, money etc ...

So what's the next big project on your agenda?

Ooh that would be telling! [Laughs]. Although I can say that we've recently been asked to do the art direction on rap artist Ludacris' latest music video, which is going to directed by Chris Robinson. LRR has also been developing a TV


spot for a world-renowned, sugary, carbonated water beverage for quite some time now, which we hope we'll be able to reveal soon!

So with all the secrecy surrounding your current project, what project would you love to have under your belts?

Well we recently finished doing VFX work on videos for Ludacris and Chris Brown, and there are future projects we are looking to do of the back of those. We would love to direct more, but are just as happy working with talented directors and production companies too. We hope to unveil one of several concepts we're working on with our clients, which is something that all involved feel will have significant impact worldwide and be a barometer for several new techniques, both in visual effects and storytelling, that we're developing over here at Little Red Robot.

What are you future goals for your company and where would you like to see yourselves in 10 years time?

Well, we are slowing building the company up. We've been inside our current office in SF since January and our strict business model is down to hiring great talent on a project basis. We are also talking to a number of well-known agencies about representation etc, so lots of interesting things are happening, and as always, the
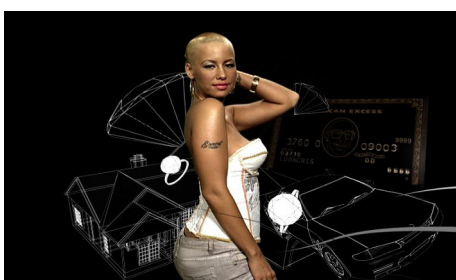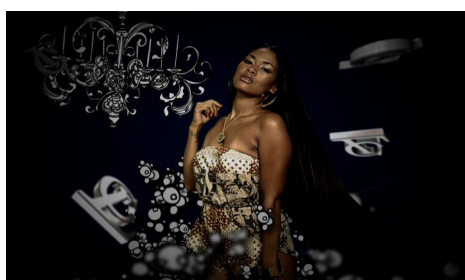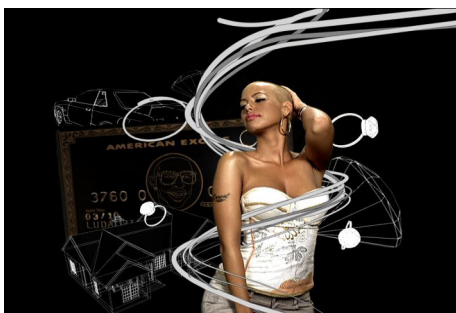
talented artists we surround ourselves with on every project makes our next project even better than the current. We see this as the driving force behind our company. We see ourselves focusing 96% on directing, but one thing that won't ever change is our need to keep pushing the envelope on every project.

One thing that I have been meaning to ask is: where did the name "Little Red Robot" originate?
The autobiography we're releasing later this year answers that question, and our publishers are strictly keeping it all under wraps until then!

Wow an autobiography! You're the first company that I've heard of having one of these. How did this come about, and who's writing it?
Sorry for misleading you on that - it's just our sense of humour!

Well it has been a pleasure talking to you again HaZ, and I wish you, Seth and Little Red Robot all the best for the future. One last question before we wrap this up. How would you describe your company to a prospective client?
Little Red Robot is primarily run by Seth Shukovsky, and he gets talented artists into the mix, such as myself, based on what the creative aim is for each project. Little Red Robot is a place where we can take an idea and develop it with art direction, boards, through production and filming, on-set VFX supervision, then do the most contemporary effects treatments and design techniques to help support the story, while still providing the audience that critical visual appeal that has become the LRR trademark.

HASRAF DULDULL
LITTLE RED ROBOT

Director/Lead Compositor
For more information please visit:
http://www.littleredrobot.com
Or contact:
info@littleredrobot.com
Article courtesy: Chris Perrins
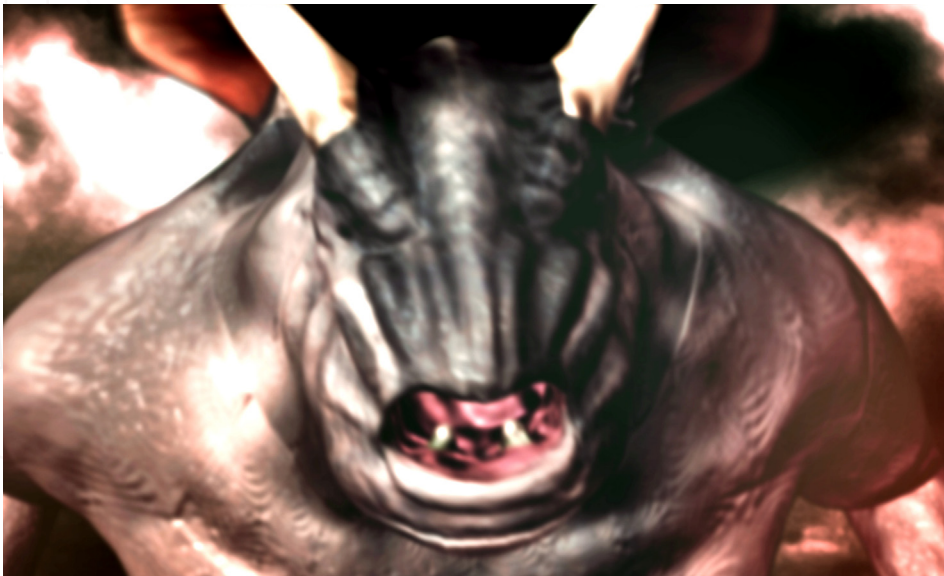
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VFS student work by Zheng Tang

"IN USING A DESIGN TREATMENT INSPIRED BY US CURRENCY, WE WANTED THE LOOK TO HEARKEN TO THE VIDEO GAME DYNAMIC, BUT ALSO HAVE A MORE ILLUSTRATIVE AND ARTISTIC QUALITY."

Shilo takes us through how they approached their latest commercial project "CA$H" for the *Mercenaries 2: World in Flames* computer game.

CA$H

SHILO'S NEW CG/HD SPOT FOR "MERCENARIES 2: WORLD IN FLAMES"

CASH

SHILO'S NEW CG/HD SPOT FOR 'MERCENARIES 2: WORLD IN FLAMES'

The filmmakers from creative production company Shilo (www.shilo.tv) recently directed and produced a stylised, high-energy, design-infused HD spot, completed entirely in CG, for the creative team from ad agency Draftfcb San Francisco and their clients at Electronic Arts. The spot, entitled "Ca$h," debuted on television on 19th August, promoting the highly anticipated 31st August (5th September in the UK) console and PC releases of Pandemic Studios' *Mercenaries 2: World in Flames*.

Unlike many video game commercials that are built from existing game footage, Shilo's team, under the direction of co-founder and creative director Jose Gomez, produced stylised original content for every frame of their spot after receiving the models for the popular game's characters, vehicles, and environments directly from the artists at Pandemic Studios. Featuring
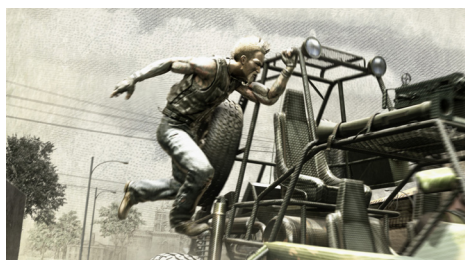
meticulous character animation and a standout design perspective, Shilo took the game's core ideas of fantasy and chaos and blew them sky high. Since cash is a prime motivator for mercenaries, Shilo cleverly rendered the look and feel of the spot by using U.S. currency as a texture, and seamlessly wove that into the entire spot. In the opening shot, Mattias goes to collect his money but is double-crossed – prompting him to dramatically and explosively unleash his vengeance, kicking some drug-dealer ass while a male singer relates, "Oh no you didn't!" Also by design, where video game ads often feature heavy-metal soundtracks, the crooning rappers and their humorous, upbeat tune gives the high-action an ironic twist. The original music track is courtesy of composers Scott and Roger Wojahn of the Wojahn Brothers.

"The agency creatives came to us with the ideas of revenge, mayhem and ironic music in a world where money is all-important," Gomez explained. "In using a design treatment inspired by US currency, we wanted the look to hearken to the video game dynamic, but also have a more illustrative and artistic quality. So we integrated the style of actual dollar bills to pull the stylised look and the narrative concept together. From there, we focused on telling a high-impact story that's true to the game's imaginary world, without giving away any of the narrative's best secrets.

"This was a really fun project for us, where we feel our ideas of using design to heighten storytelling come through in new ways," Gomez concluded.

Gomez and his fellow artists on this project used Adobe Creative Suite 3 for design, Autodesk Maya for character animation and 3D, QUBE for managing renders, Mental Ray for rendering, Adobe Photoshop for texturing, Adobe After Effects for compositing, and Final Cut Pro for editing. More information on *Mercenaries 2: World in Flames* is available at **www.mercs2. com**.

Along with SVP creative director Matt Reinhard, the agency's creative team also included VP associate creative directors Colin McRae and Tony Vazques, and broadcast producer Dan Watson. For Shilo, credits also included Curtis Doss as lead designer (along with Gomez) and editor, Santino Sladovic as executive producer and Jake Hibler as producer. For the Wojahn Brothers, Dara Norris served as producer. Full project credits are available upon request.

About Shilo

Shilo is an Emmy Award-winning creative production company representing a group of filmmakers led by directors Jose Gomez and Andre Stringer. Internationally known for creating original and commissioned work that is powerful, provocative and visually extraordinary, Shilo's deeply held passions for design-infused storytelling and their innovative applications of live-action, design, and animation techniques deliver breakthrough experiences for screens large and small. From its studios in New York and Del Mar, California, where recent projects have spanned short films, commercials and music videos, Shilo has the capacity and experience to originate ideas and handle all aspects of production. Shilo published its first book, *We Make It Good*, in 2007, and also curates the site **www.WeMakeItGood.com**. For more information, or to request a reel, please contact Tracy Chandler at +1.212.352.2044, or visit Shilo online at **www.shilo.tv**.

Shilo

For more information please visit:

http://www.shilo.tv

Or contact:

info@shilo.tv

Article courtesy: Shilo

THE GALLERY

This month we feature:

Chris Carter

Yasser Aazarnoush

Olivier Cannone

Den Fox

Somogyi Donat

Henrik Lindqvist

Nicolas Collings

Michal Kwolek

Gregory Callahan

Daniel Lieske

ORC MAORI

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LIESKE '08

Rajun Cajun Jug Band

Gregory Callahan

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DINNER ON THE WATER

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Check out the "Making Of" for this image on Page79

THE BAKER FARM

Henrik Lindqvist

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Creating a Complete Scene From Concept to Render

This series will run over the next six months and will endeavour to give you an insight into how a fully realised 3D scene may be arrived at from beginning to end. The tutorials will attempt to address the key issues and techniques appropriate in achieving this, from concept sketches through to building the 3D scene, mapping and unwrapping, texturing and eventually to lighting and rendering, culminating in a final render. The emphasis over the course of the series will be on the texturing, which will be covered in two of the six instalments, and principally the aging and wear of materials.

This Month :
Part 4: Mapping
This chapter will focus on the mapping and unwrapping of your scene

Creatures of the Night

Welcome to the brand new Speed Sculpting section of 3DCreative magazine. Each month we will give two talented ZBrush sculptors a brief and a base mesh from which they are to interpret and speedily sculpt a model within a suggested time. Here we will show the stages of creation of their "speed sculpts" in the form of mini tutorials. You will often find free movies to accompany these tutorials, and we hope that this new series will be successful and thrive for many months to come!

This month our two skilled speed sculptors are **Alex Oliver** and **Rafael Grassetti,** who are tackling the brief: **Creatures of the Night**

If you'd like to follow along with these tutorials, we have provided the same free base mesh for you that we also gave to these two artists for their own speed sculpts. Download your own base mesh from the **Free Resources** logo below and get sculpting! Enjoy!

FREE RESOURCES
DOWNLOAD HERE

SPEED SCULPTING

Rafael Grassetti

CREATED IN:

ZBrush

INTRODUCTION

Speed sculpting is something that really helps me to improve my modelling techniques. I made a lot of them when I was starting out, and I still like to create them when I have some free time.

I usually start my models from a really simple base mesh. I think it's faster – and more enjoyable – to block-out forms in ZBrush. I also think it's a lot easier to retopologise things nowadays; one of best features of ZBrush is the retopology tool, which I personally think is amazing! For this piece I used a base mesh provided by 3DCreative and adjusted the shape and details.

CONCEPT

When I think of a "creature of the night" I usually think of vampires, and as I'm a fan of this
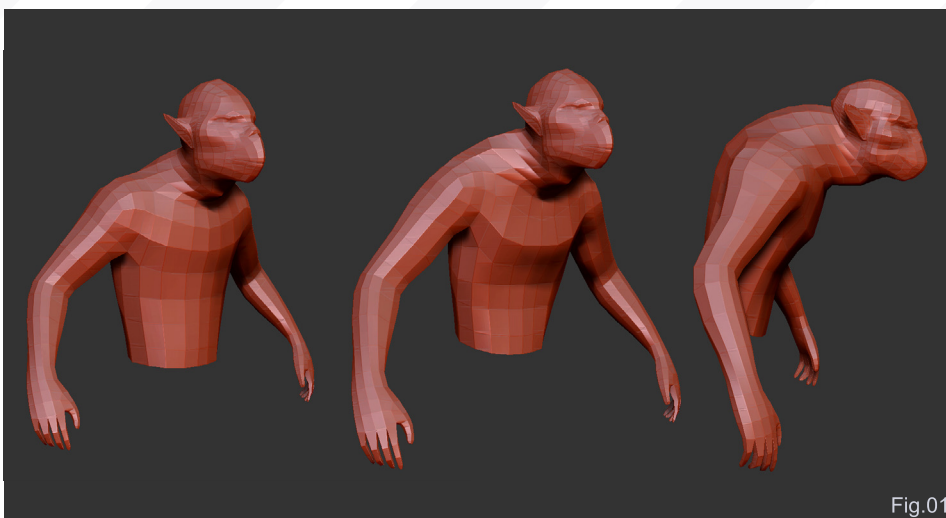
Fig.01

particular theme I had this in mind right from the very beginning. However, I then considered doing something different, so I did some quick research on the Internet and found some photos and references of what I thought would fit into the theme of "creature of the night".

SPEED SCULPTING!

After importing the base mesh into ZBrush, I started messing with the Move, Clay and Standard brushes to add volume, not going too high on the subdivision levels. The main focus at

this point wasn't detailing, it was on the shape of the silhouette and volume, so I kept my polygon count low at the beginning and focused on the gesture and basic form, trying to find the best design sculpt – as I didn't have a final creature in mind at the time.

The design sculpt is intended to represent the finished model. Its main purpose is to suggest forms that we will later make more precise. So when I found the design that I wanted for the model, I continued subdividing and adding details (**Fig.01**).
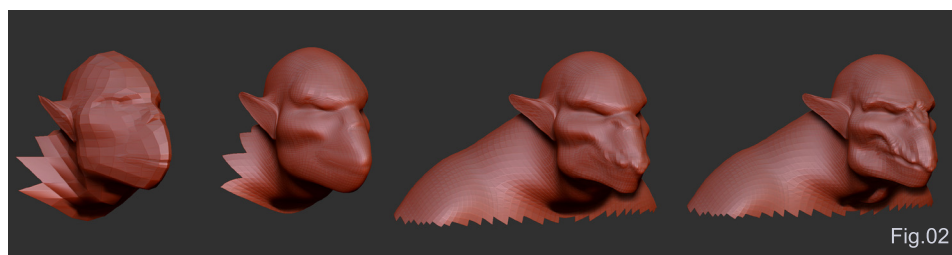
I remade a few parts that I blocked out in the beginning. Sometimes it's best to start a mesh again rather than work from a detail already started. Often you can lose a lot of time by reworking something when you could actually

Fig.02

Fig.03

Fig.04

do it again from scratch so much faster! This is something that I usually see myself and friends doing – don't be too lazy to restart something!

In the mouth area I smoothed the entire section and remade the teeth and the form of the mouth (**Fig.02**). I sculpted this part using the Standard brush, and finished it with masks and the Move brush. If I wanted to animate this model, or use it with an open mouth, I would retopologise the model and continue sculpting with a better distributed base mesh.

As I didn't have too much time to work on the details I blocked out the main body proportions and added a few small details (**Fig.03**). If I'd had more time, I would have spent longer on it, adding brushes and alpha details. The silhouette and proportions are the things that make a

Fig.05

Fig.06

character, but details like pores, wrinkles and veins really help to sell it! I also used the Lazy Mouse to achieve clean, smooth lines on the small details.

The next step was to adjust the shape and the pose using another ZBrush feature called "Transpose". The basic idea of this is to deform a level of your mesh using masks and

polygroups; it's a really easy and intuitive way to pose your model. By masking the mesh, using the Control key, with Move, Rotate and Scale you change the forms – you have total freedom to do what you want with your character (**Fig.04**)!

As I didn't have too much time to finalise the model, I didn't make an extreme pose because

although the transpose is a great tool, you often
you have to re-sculpt some parts due to the
badly posed muscles and enveloping. So after
finding a nice pose, I refined the posed model
by adding more detail and fixing the look
of the posed muscles (**Fig.05** - **Fig.10**).

With all the modelling done I usually play with
poly paint feature in ZBrush and give some
colour to my models. With this piece I simply
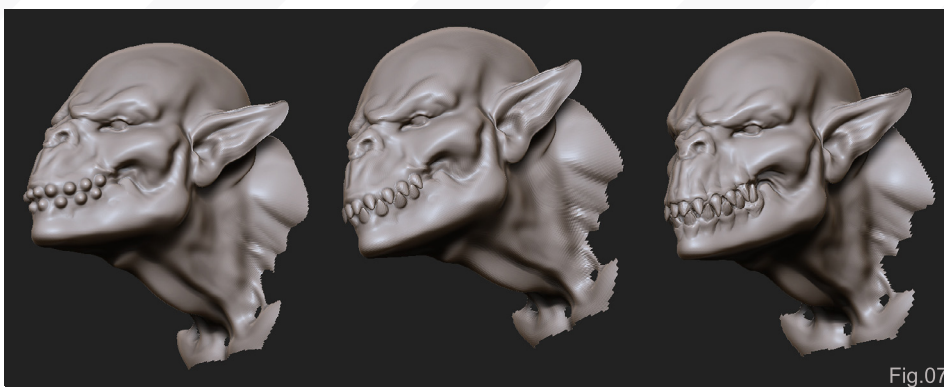
Fig.07
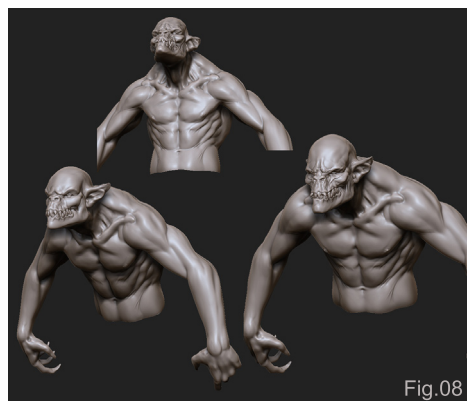
Fig.08

Fig.09

Fig.10

played with some materials and lights to create
a final image for the sculpt (**Fig.11** & **Fig.12**).
Overall I spent three hours and 25 minutes
working on this model, from the initial base
mesh through to completion. I had a great time
working in it and writing this little tutorial to
help explain some of my modelling techniques
and the creation process, and I hope you've
all enjoyed this as much as I have. Creating
speed sculpts is something that will help us
all to become better modellers and every new
character will be better than your last one!

Happy sculpting!

Rafael Grassetti

For more from this artist visit:
http://grassetti.cgsociety.org
Or contact:
rafagrassetti@gmail.com
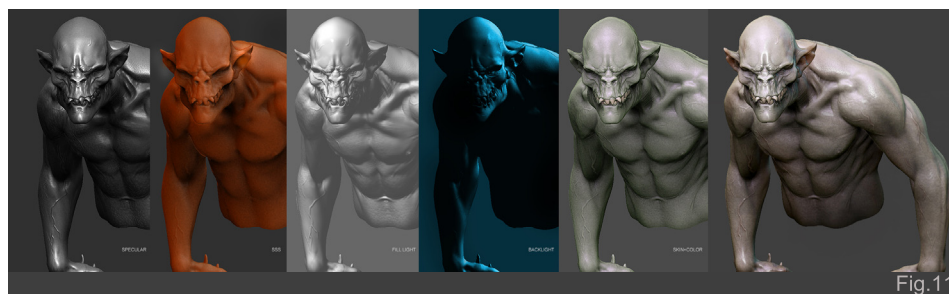
Fig.11

Fig.12

Alex Oliver

STEP 01

I begin this work by first of all looking for good vampire references and watching vampire movies such as Bram Stoker's *Dracula*, *Interview with the Vampire* and *Van Helsing*. My intention is to find good designs to act as inspiration for my concept for this piece. Of course, you can also use good book references like the Carlos Huante books, as well as the Internet. One of the best artists that I find to be of inspiration is Miles Teves (http://www.milesteves.com). Sure, you can use your own imagination to create your concept, but seeing
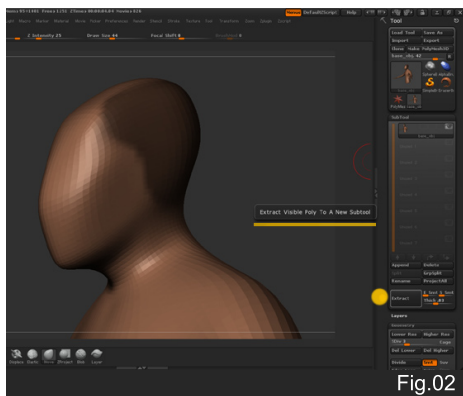
Fig.02
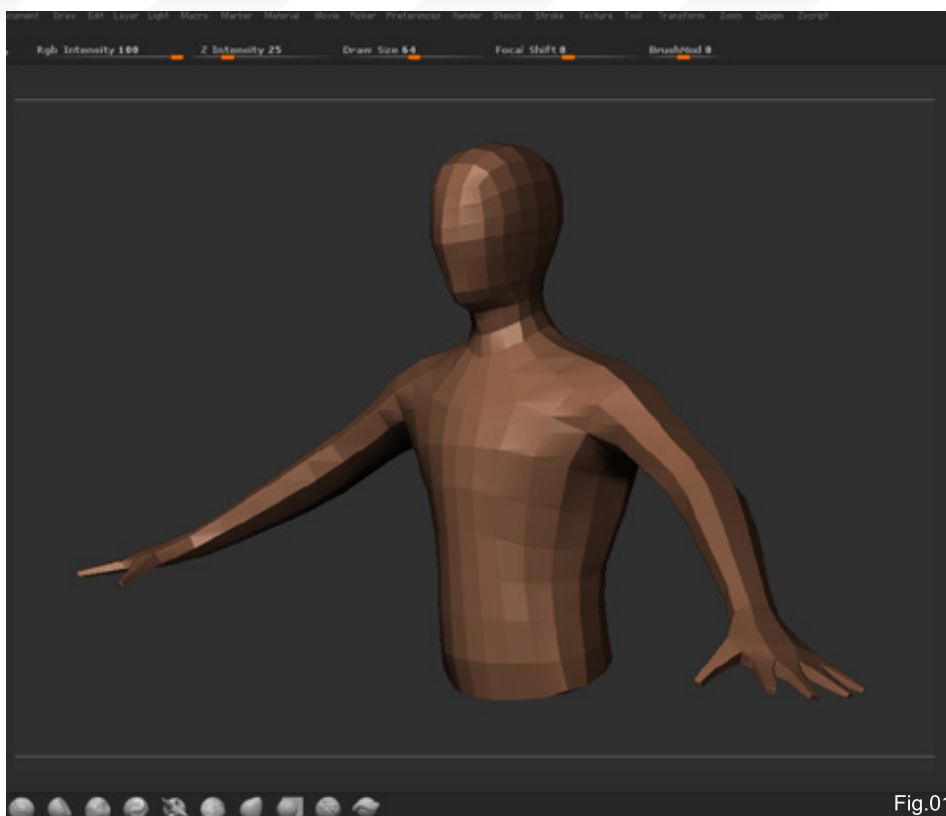
Fig.01

the work of some of the great Hollywood guys will be a bonus for your imagination.

Try to make some initial concept drawings, or simply use ZBrush like a sketchbook and have fun with shapes and volumes. Also try using the Move brush to try and find a good design.

From the low-res base mesh provided, I start by using the Move brush to try and find a good shape and design for my "creature of the night" character (**Fig.01**).

Don't rush your work at this stage; try adding details and muscles, keeping in mind that you need, first and foremost, to find a good design for your character before adding any detail to your model.

STEP 02

Now, holding down the Ctrl key, I paint a mask in order to work on the ears (**Fig.02**). I go to the SubTool menu and click on Extract – this creates a new SubTool, just for the ears. Leaving the ear SubTool on you can then use the Clay and Standard brushes to start your sculpting work in the ear area – just working on the shapes, as you will have already done for the body.

STEP 03

Now we can do some work in the neck area, as well as the head (**Fig.03**). Just be sure to keep in your mind that we're only working on

Fig.03

the shapes here – no small details yet. I use two brushes to do my sculpting work: the Standard brush and the Clay brush. I use the Standard brush just in ZSub mode and the Clay brush in ZAdd mode.

STEP 04

As you can see from **Fig.04,** it is at this stage that I add some wings to my character. Using the Mask feature (hold down Ctrl) I paint a mask on the back of my character. I then use Extract to create the wing. Leaving the wing layer on I start work, using the Move tool, on the shape of the wings.

STEP 05

Now, holding down Ctrl + Shift and selecting the entire arm, I paint a mask on the hands. Holding Ctrl + I, I invert the mask, leaving just the body now selected by the mask. Click on the Rotate feature in the Transpose menu and rotate the hands, as you can see in **Fig.05**.

STEP 06

At this point I transfer all of the work done on the arm to the other arm that was previously hidden. To do this, simply go to the Tool menu, and under Deformation, click on Smart ReSym. Smart. This will transfer all of the work that you
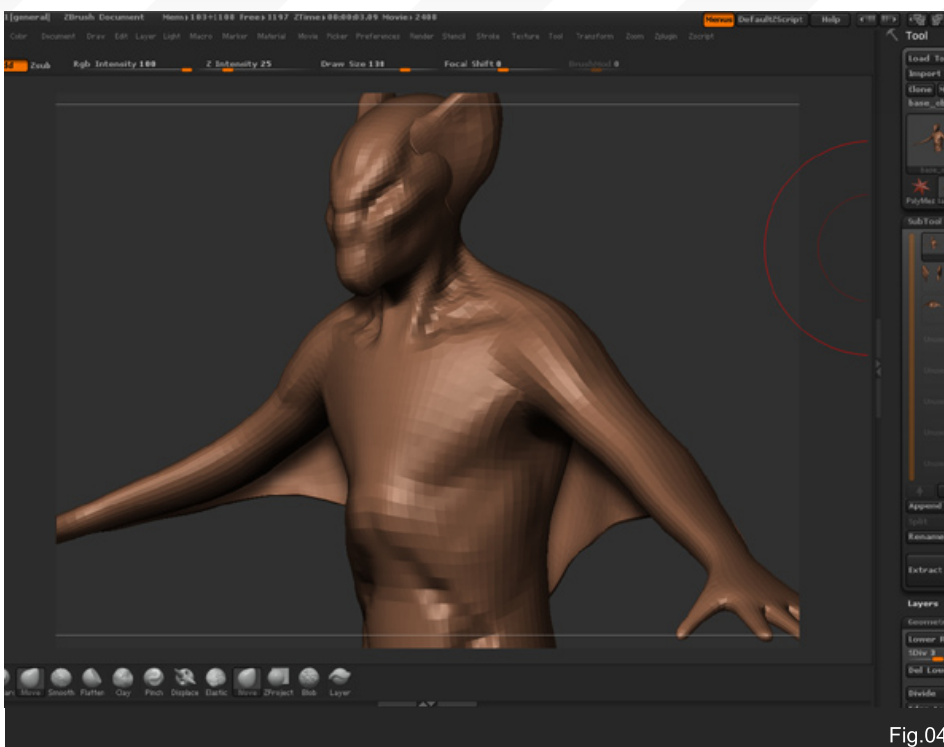
Fig.04
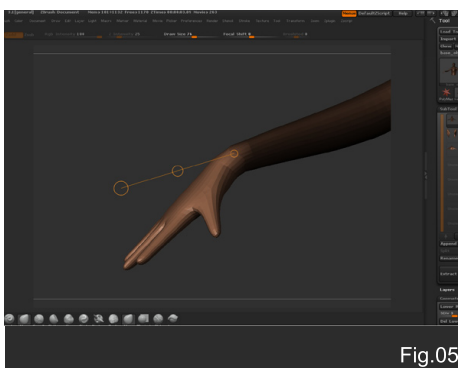
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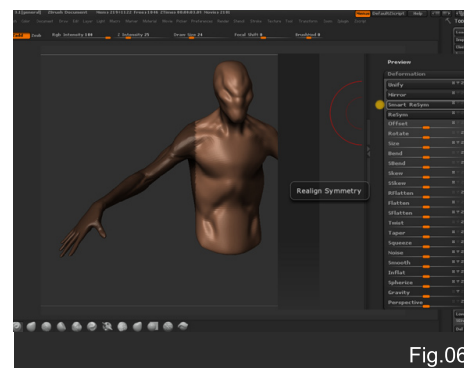
Fig.06
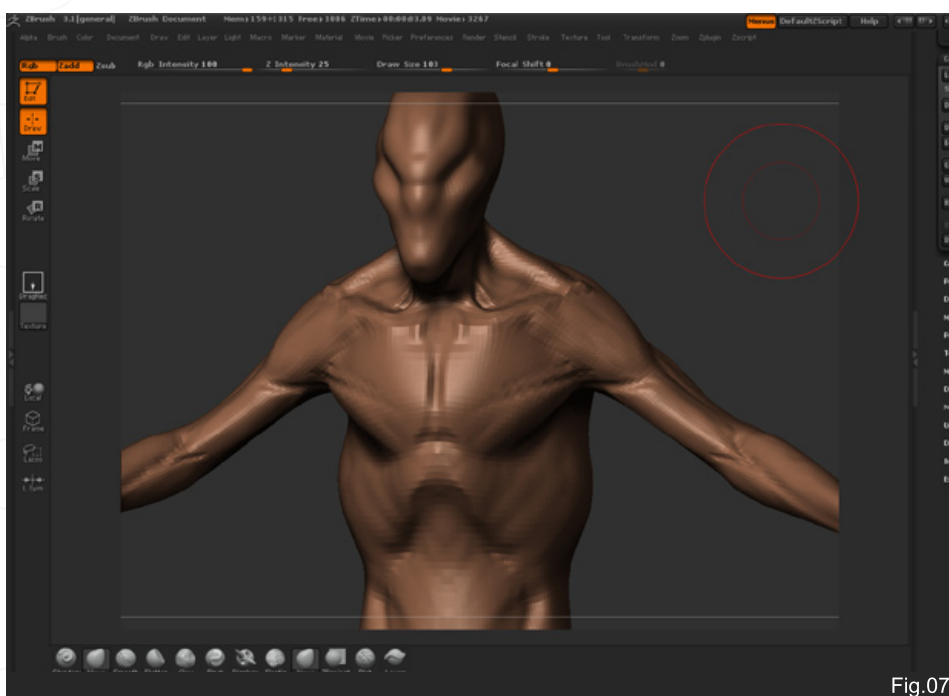
Fig.07

have done on the selected arm across to the hidden arm (**Fig.06**).

STEP 07

Now, again using the Standard and Clay brushes, I start to add more details and structure to the torso, using reference images to keep the anatomy looking realistic and organic (**Fig.07**). Try using good anatomy books when you work on a subject such as this, or simply try finding some good images of old aged and/or thin people,

STEP 08

I do the same thing to the arms, face and ears. As you can see from the image (**Fig.08**), I add a new SubTool and create a new piece for the ears (you can see the entire process in the
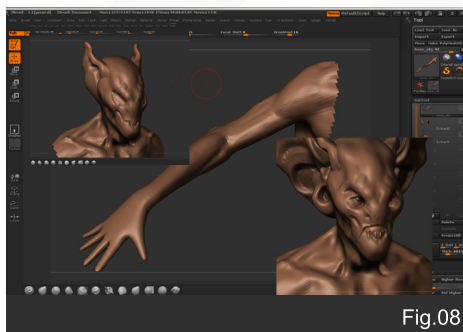
Fig.08

movies provided with this tutorial). However, as you will see in the next images, I delete the layer – I don't like the new ear design.

Remember: you are able and free to make any changes you like, or to create your own vampire design as you see fit, just try and work out what will be best for your own design. You can add or delete anything – it's all about using ZBrush to create a character, so use your imagination!
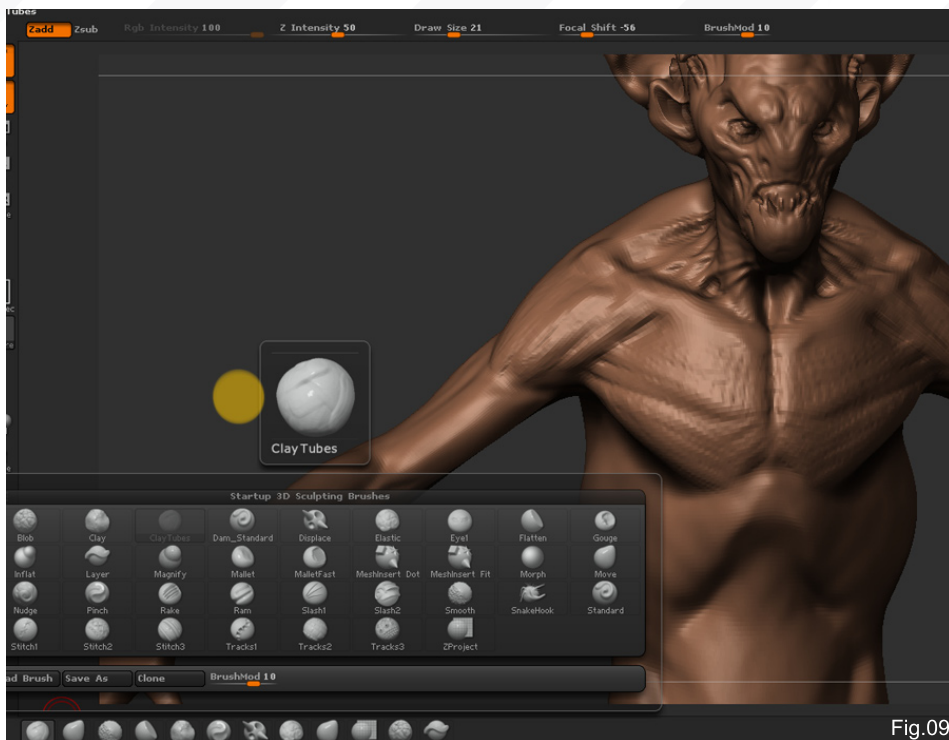
Fig.09
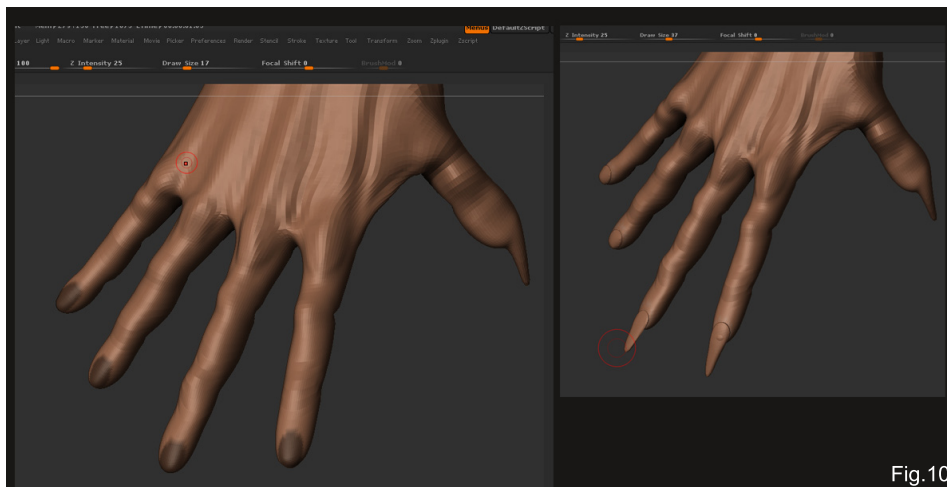
Fig.10

STEP 09

Now, using the Clay Tubes, I do some more work on the muscles, trying to use the brush in the right direction of the muscle flow to keep it looking more natural. You can also use the Clay Tubes on the arms, neck, shoulders and back (**Fig.09**).

STEP 10

Using the Mask, I create the nails using the same method that we used to do the ears and the wings. Simply mask the nail areas and use the Extract tool again to create SubTools for the nails. Then, using the Move tool, you can move the nails as shown in **Fig.10**.

STEP 11

I keep my focus on the face area at this point, using the mask to select just the face area and
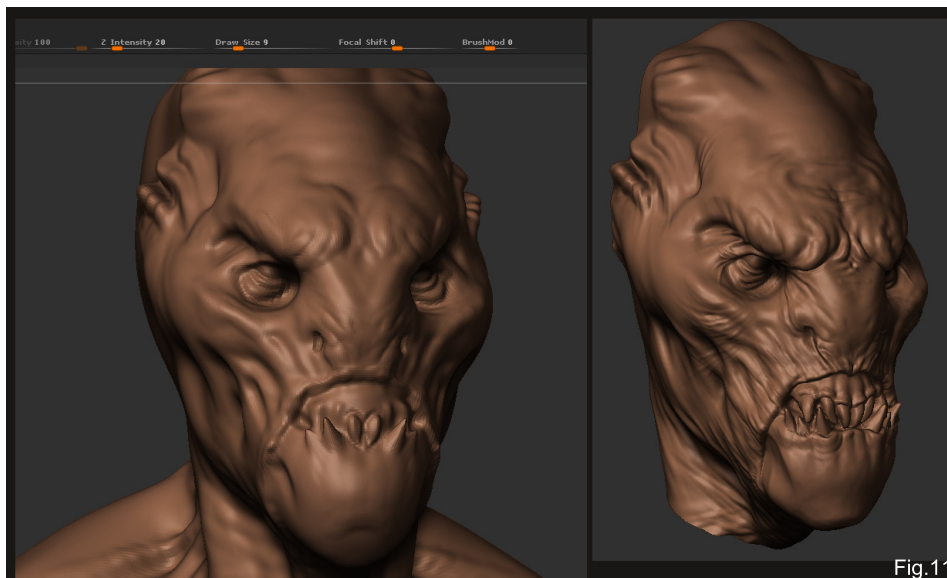
Fig.11
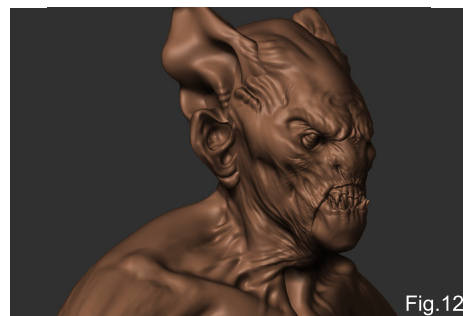
Fig.12

working on all the small details there. You can try using your ZAdd, ZSub and brush intensity to find the best way to create the face details that suit your character – just have fun trying different intensities and sizes. As you did with the torso area, you can use the old age people references to give you an idea of how to give your face a more organic look (**Fig.11**).

STEP 12

As you can see here, I have the design of the head finished, so I can now work on all those tiny details, such as the pores and wrinkles (**Fig.12**).

STEP 13

Using the Standard Brush I give some flesh details to the back area, which gives the back a much more organic look and feel (**Fig.13**).

STEP 14

As you can see in **Fig.14**, with all of the muscle and bone structure complete, I can add more of the smaller details and refine them further.

STEP 15

You can see the before and after detailing work of the torso in **Fig.15**. As I have mentioned
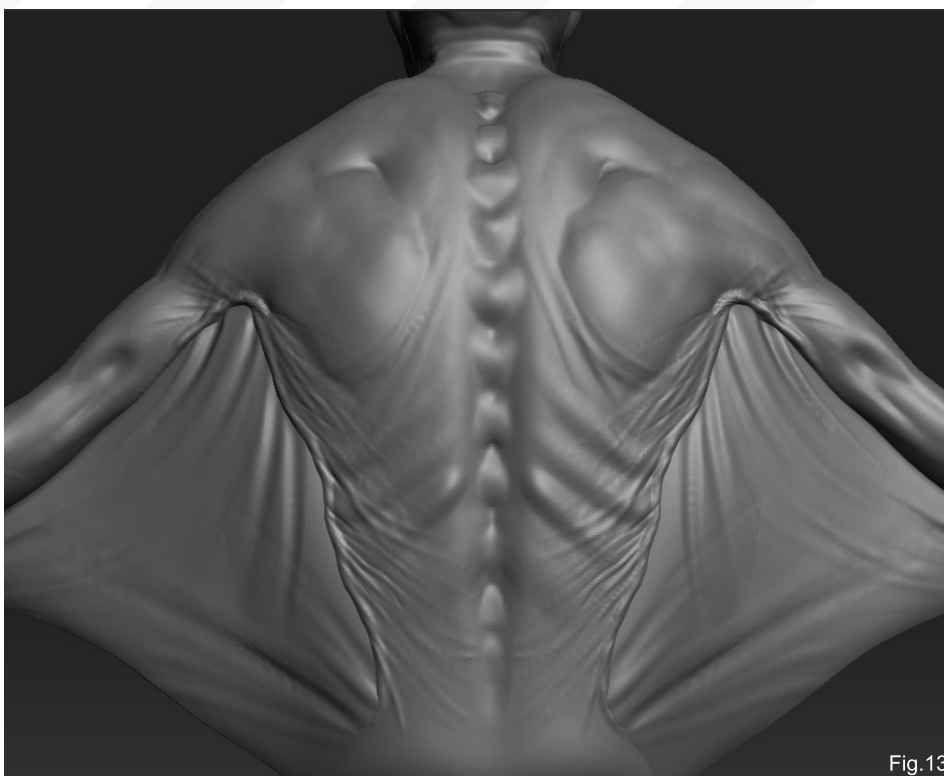
Fig.13

already, the most important tip here is to try and use real human anatomy images as your references. Do not try to do it without image references – be professional.

STEP 16

Here you can see the complete character (**Fig.16**).Thank you for your attention and please

watch the movies that accompany this tutorial – hopefully you will find some good tips there.

Note from the Editor: Alex Oliver has kindly provided another 17 downloadable QuickTime movies which accompany this great speed sculpting tutorial based on a "creature of the night", especially for 3DCreative magazine.
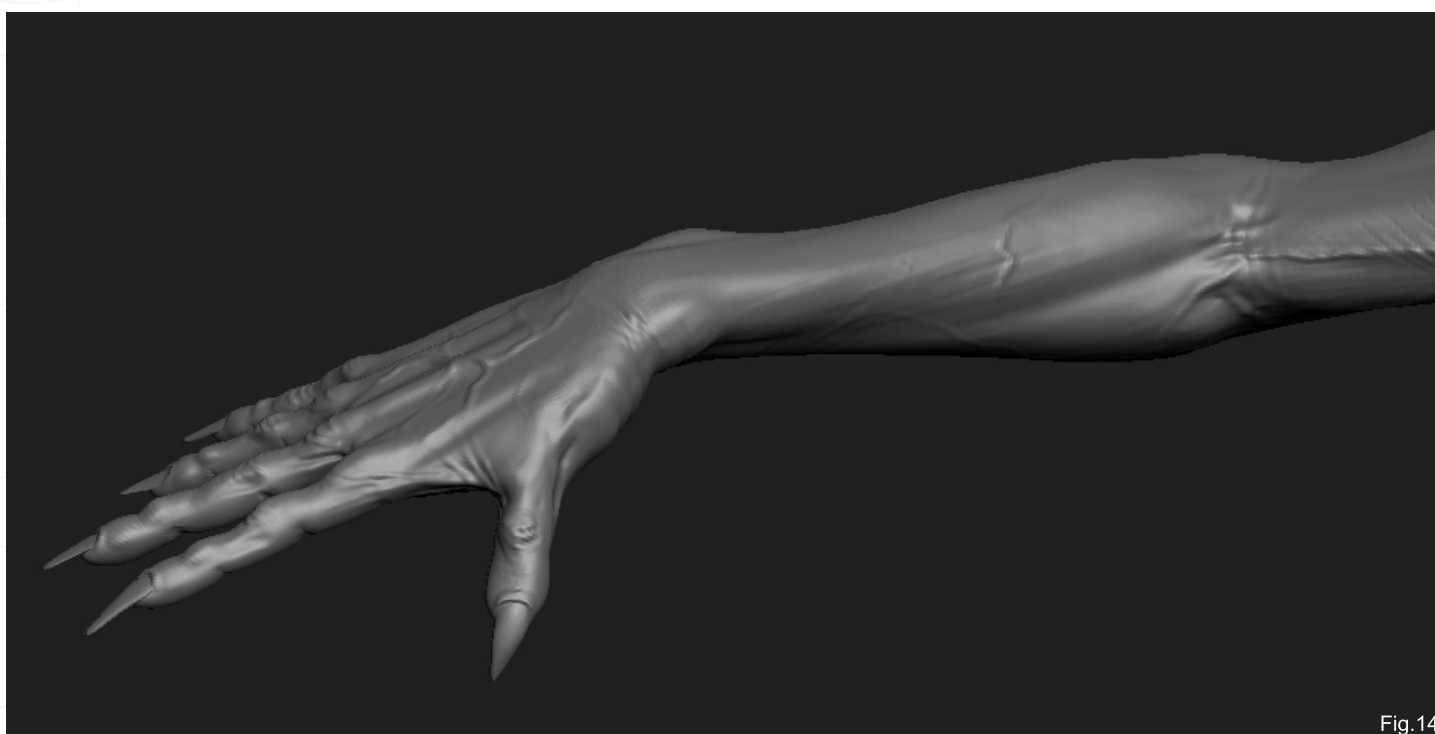
Fig.14

You can download them all here. Please note that the movies have all been provided in real time and so the file sizes are very large. We hope you will enjoy learning from this ZBrush sculpting genius. Enjoy!

ALEX OLIVER

For more from this artist visit:

http://www.alexoliver.art.br/

Or contact::

mail@alexoliver.art.br

Fig.15

Fig.16

"It's always great to paint details and make the corrections of some things freehand. So inside Projection Master I pick the single brush and paint some colour variations between cavities, like between where the muscles connect and where the skin wrinkles"

Steroid-Pumped Guy
Character Creation
ZBrush

Welcome to the new ZBrush Character Creation tutorial series. Each month, Rafael Ghencev will take us step-by-step through the transformation of a clean, generic head base mesh into a character type of 3DCreative's choice! We thought that topics such as a wrinkled, gaunt, old man, a steroid-pumped guy with popping veins, an extreme tattooed and pierced dude, and even some real extreme cases of personality disorders in the form of a vampire and a werewolf, would be fantastic for detailed sculpting work! On top of all these, Rafael thought it would be cool to sculpt and texture Frankenstein, and we agreed, so we've even thrown that one into the line- up for you as well. So stay-tuned over the next nine months to see Rafael at work and to learn a thing or two about detailed sculpting in ZBrush for characters. This third tutorial covers the development of a steroid-pumped guy.

Enjoy!

ZBrush Character Creation
Steroid Pumped Guy

CREATED IN:

ZBrush

CONCEPT

Hi everyone, I'm back again with the next part of the series, tackling the creation of a steroid-pumped male character. For this character I already had in my mind what I wanted, so I simply made a quick concept to get my idea down onto paper (**Fig.01**). I wanted to do something a little different this time – not as realistic as the previous parts of this tutorial – and so I decided to go for a more stylised character for this theme.

The first thing I would like to mention is how to get good proportions in order to give your character more power. With the creation of a stylised, steroid-pumped guy, some of the proportions can also be exaggerated that little bit further. In my concept I basically decided that I wanted to make his trapezius and deltoid muscles very strong and large, whilst having his head hanging quite low, so this means I will have to play around a little with his muscle proportions. Another thing I decided I wanted to do in my concept was to make the top of his head very short, because this, along with the
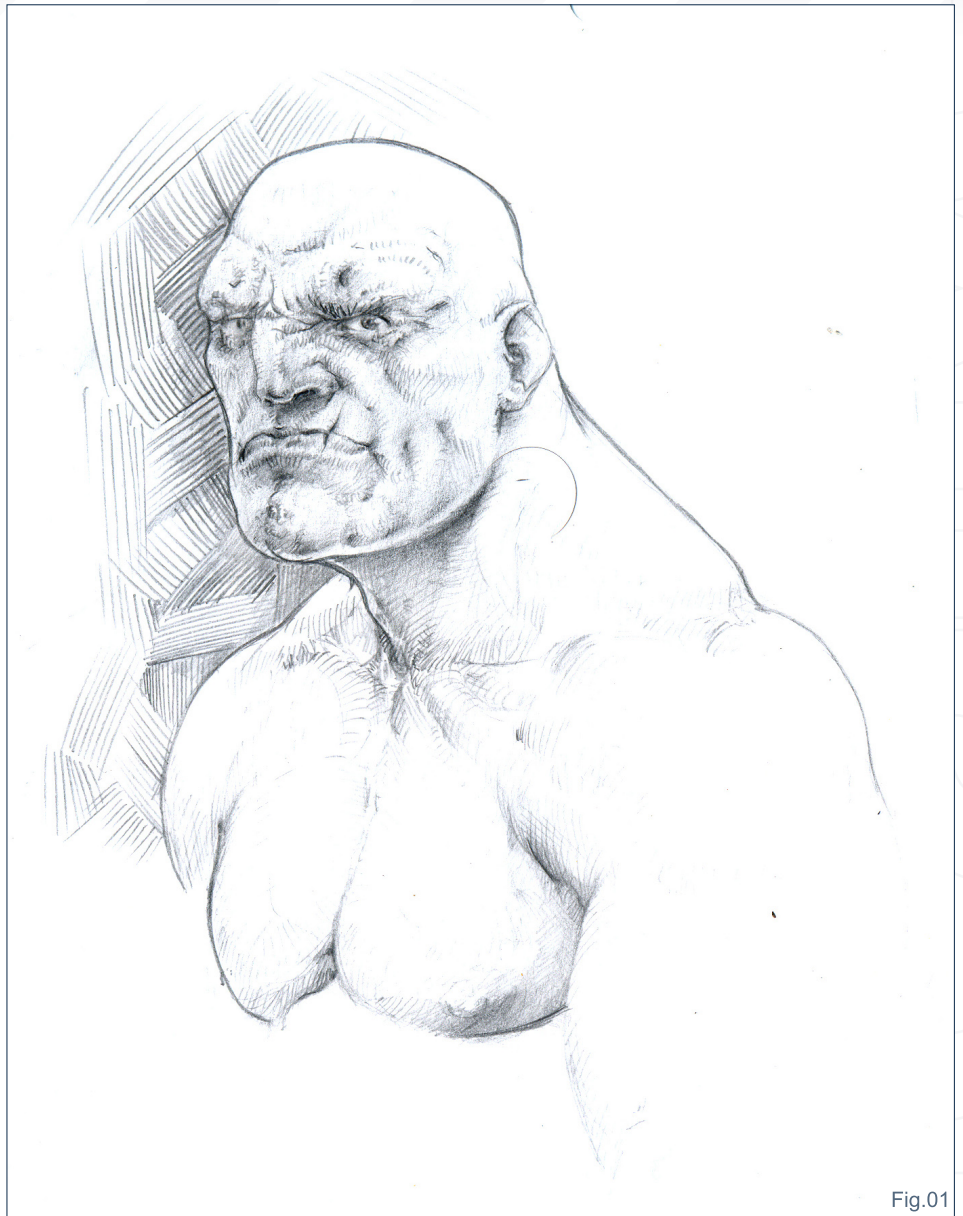

Fig.01

large jaw, suggests a character with a great strength – a small brain perhaps, but powerful in terms of his physical strength.

FINDING THE SHAPE

So with all of the decisions made with regards to the concept, I can start to model. At this stage it is very important to concentrate only on the

shape, forgetting the details and the temptation to add more levels of subdivision to your model. If your low poly shape is not good, increasing the polygons will do nothing to help anyway. The first thing to do is to fix the proportions between the head and body using the Transpose tool. I select the tool and press the Control key to make the selection for the
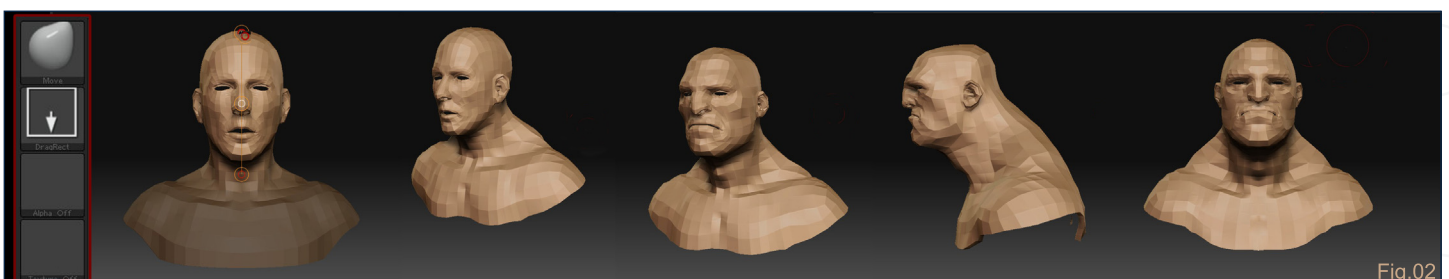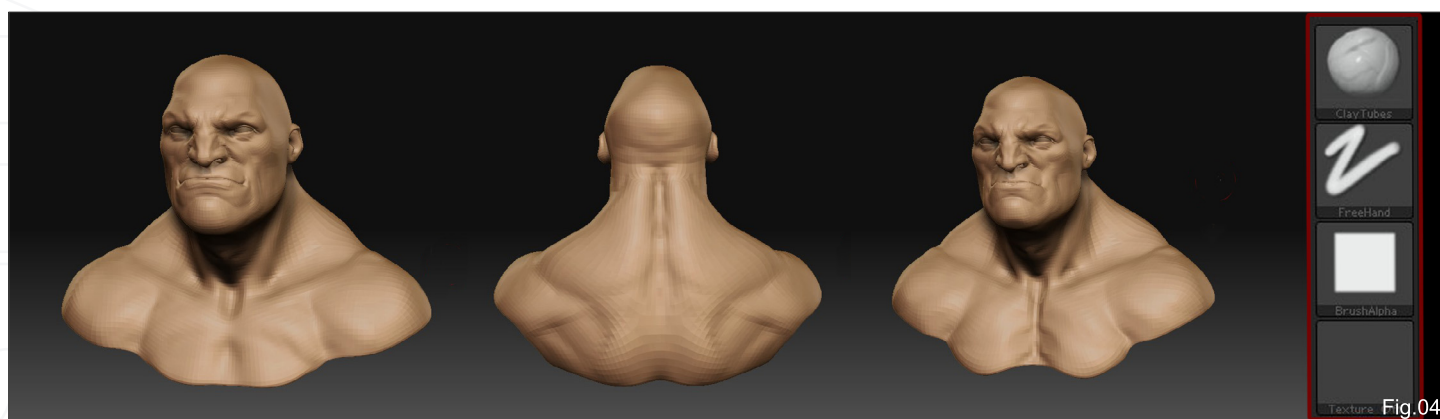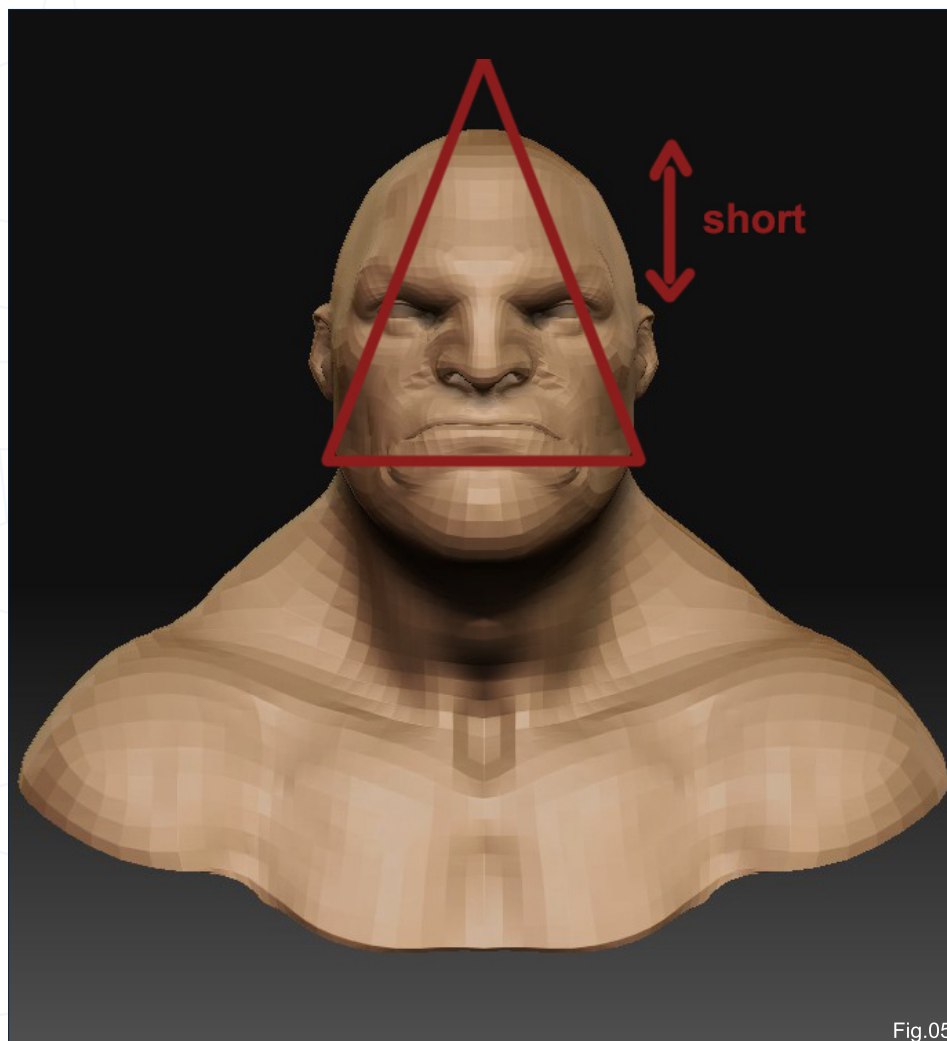

Fig.02

Fig.03

Fig.04

short

Fig.05

topology, and then scale the head. I then select the Move tool with large focal size and start finding the overall shape (**Fig.02**).

When the basic shape is okay, I add more levels of subdivision and start to refine the shape further. Using the Move and Standard brushes with low values, I start blocking in some of the muscles and parts like the mouth, eyebrows and nose, but at this stage I am still only working on the overall shape (**Fig.03**). This is the most important part of the sculpting process, so take your time at this stage to make sure you achieve a good model to work with.

REFINING THE STRUCTURE & INDIVIDUAL PARTS

With the overall shape defined, I use the Clay brush to start adding more elements to improve the shape, such as variations in the muscular volumes and in the shape of the skull, etc. At this point I can also start to refine the individual parts like the nose, mouth and eyes (**Fig.04**).

Note: Working in a low level of subdivision is very good for blocking in the overall shape, but

Fig.06

to refine the individual shapes it's advisable to make one or two subdivisions to get more polygons to work with.

You can observe from the images that I am sculpting his head into a triangular shape to give him more strength (**Fig.05**). It is very important to always use references whilst you sculpt, in order to make good characters.

REFINING THE MUSCLES & DETAILS IN THE FACE

With the shapes done, I start to block in some of his expression into the wrinkles of his eyebrows, and refine the muscles in the face.

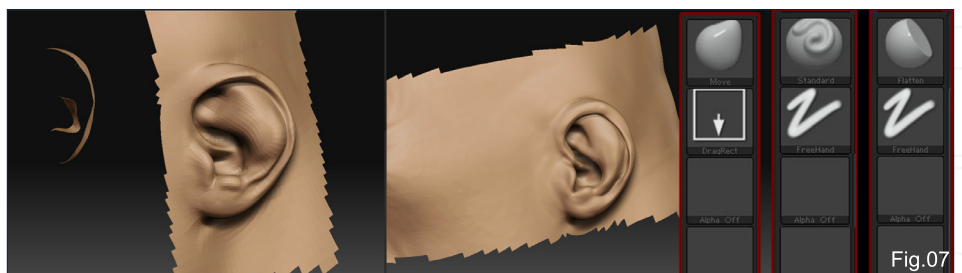Note: It can be very useful to hide some parts of your model in order to concentrate your attention on specific areas.

Fig.07

Fig.08

I decide to exaggerate his facials muscles, too, so here I make some subtle differences in the muscles under his skin, using the Clay brush. In the eyebrows I sculpt some wrinkles using the Standard brush, with alpha 38, and then use the Inflat brush with a low value to give a more

natural form. On the mouth I use the Standard brush to mark the division between the upper and lower lips (**Fig.06**).

Here I work on shape of the ear using the Standard brush and Move tool for the basic form, and then use the Flatten brush a little to achieve a more natural look for certain part of the ear, such as the outer rim (**Fig.07**).

On his chest I start to mark the muscle connections with the Clay brush, with a medium value. The pectoralis muscles are connected in the humerus, ribs and sternum. With all these things in mind, I try to give to him a natural muscular shape, and I do the same thing on his back (**Fig.08**). I find it very helpful to search for references on the Internet when sculpting; in this case bodybuilding pictures and videos were particularly useful.
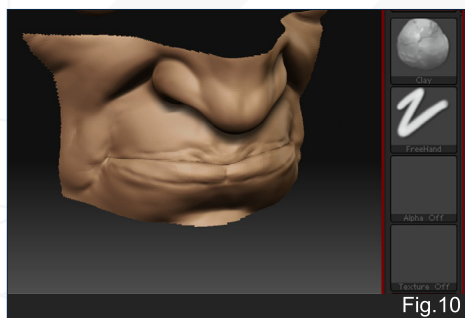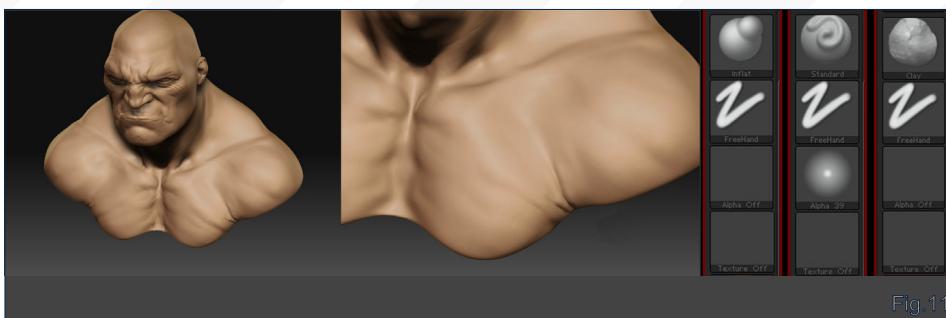

Fig.09

Fig.10

Fig 11

FINAL DETAILS

This is the time to start improving the details. I wanted to make this character fairly clean, without too much information in his face; I aimed to put only the essential details in his face, along with some important wrinkles in the brow, around his eyes and on his neck, and some skin imperfections.

To refine the wrinkles in his brow and to make further wrinkles on his face, I use the Standard brush with a low size and alpha 38, and the Inflat brush with a low intensity. I use the same brush on his neck and also to add the scar across his lip (**Fig.09**). To make the wrinkles in your model look convincing, it is very important that you use references to analyse the paths that wrinkles follow in particular areas.

For the lips I use the Clay brush with a low radius to add some volume and to show the effect of the tension between the upper and lower lips (**Fig.10**).

Back to the body, in the connection between the chest and the deltoid muscle, I build up the skin a little using the Standard and Inflat brushes, and with the Clay brush I refine the details of his chest muscles (**Fig.11**).

Fig.12

Fig.13

Fig.14

I take the model back down a few levels of subdivision and break the symmetry to make everything look a little more natural (**Fig.12**).

Stepping back up in the levels of subdivision, for the skin imperfections I choose the Clay brush with a very low radius and the Mouse Average set to 1, and start to make them one by one. This is a lot of work, but the end result is great (**Fig.13**).

Here I add some veins to the character's head, neck, chest and shoulders, using the Standard brush with alpha 01 (**Fig.14**). And here is the final un-textured sculpture (**Fig.15**).
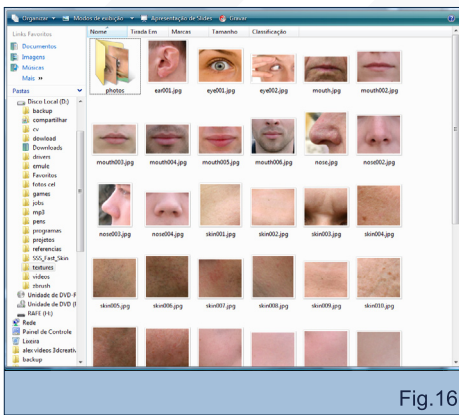
Fig.16

TEXTURE

I decided to use a projection method to texture this model, so the best way to do this in ZBrush is using Projection Master, because we'll have total control and I can change the projection of the images – just like the Liquify filter tool in Photoshop.

To start the texturing process I start like I always do: changing the shader to a white one, creating a new texture for the texture palette, and turning off the perspective to avoid any texture distortions.

Inside Projection Master I choose the Plane 3D object, select an alpha – in this case I used one with soft borders – and in the Texture palette channel I pick the image that I want to project onto the model. I created a library with some interesting skin tones to use for my character (**Fig.16**).

Fig.17

Fig.18

Fig.19

Before starting the projection of the images, it's necessary to lower the Z Intensity value to 0, otherwise we'll get deformations in the model and we can't allow this. I also lower the RGB Intensity to block in the initial skin tones.

The first projection I do is the mouth. After the projection I turn on the edit mode, pick the move option and then start to fix and snap the image to my character's mouth. I do the same thing with the eyebrows and the nose. I can then start blocking the skin tone in, and for this I adjust the intensity to around 50 – 60. Once the skin tone is done, I can then project some images of stubble onto the model (**Fig.17**).
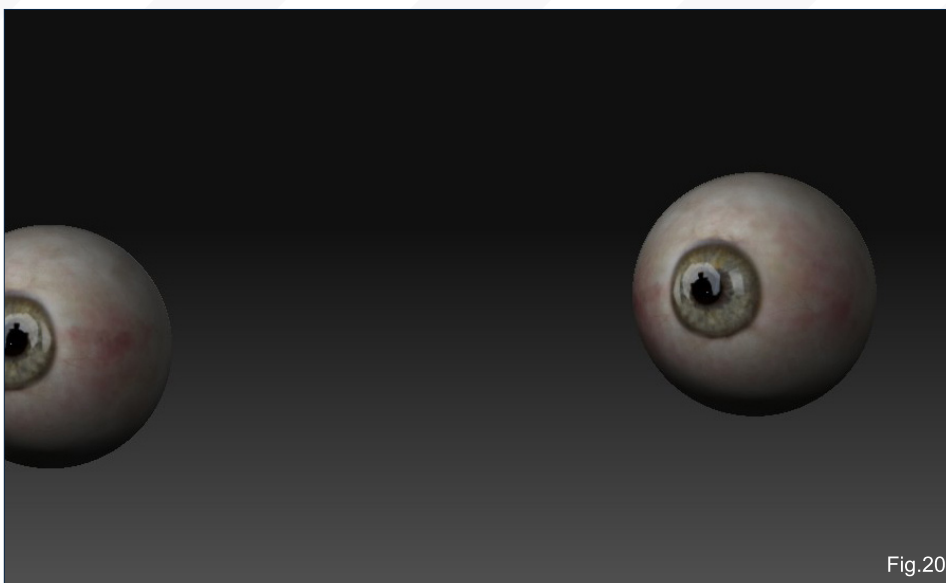
Fig.20
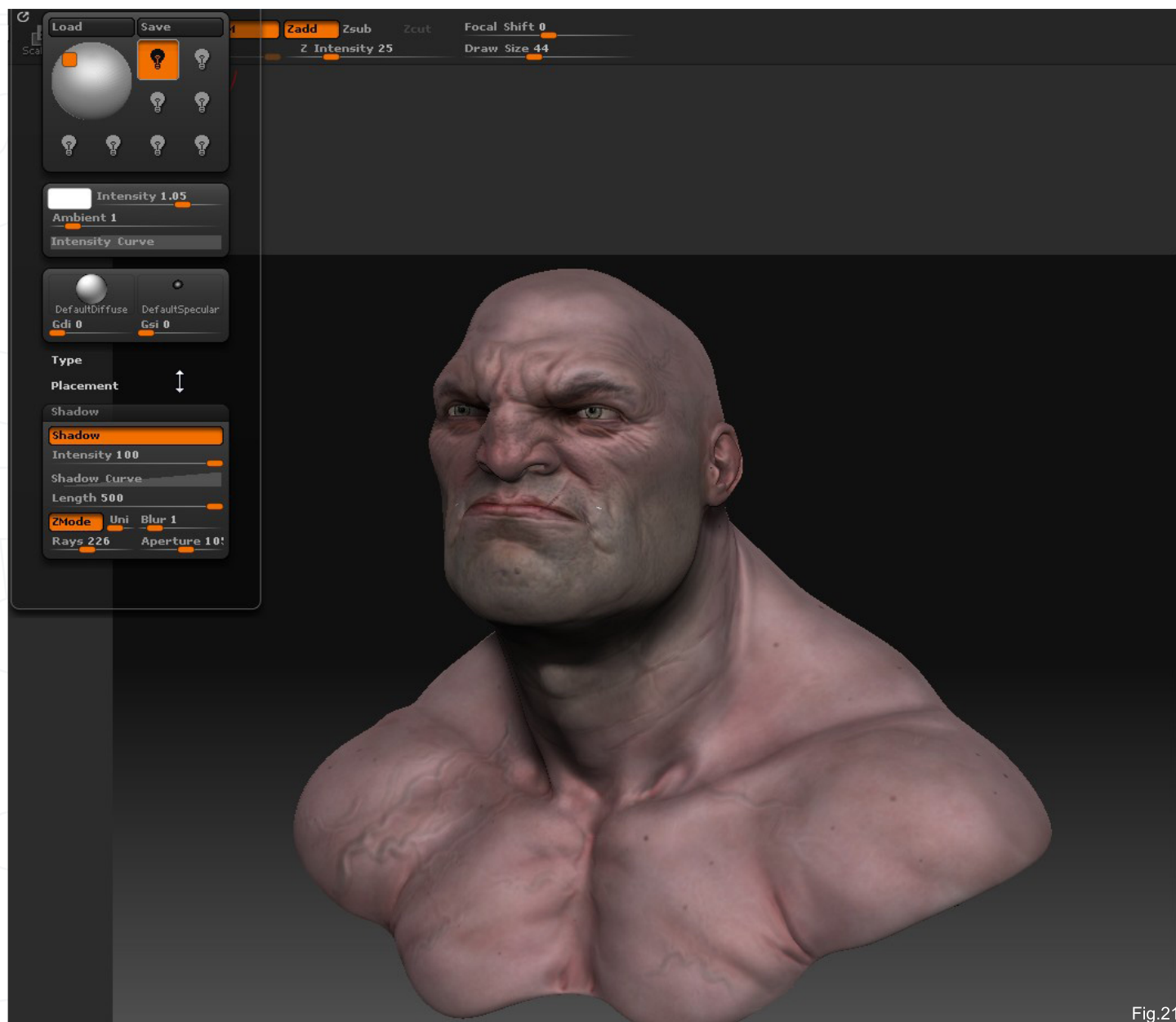
Fig.21

It's always great to paint details and make the corrections of some things freehand. So inside Projection Master I pick the single brush and paint some colour variations between cavities, like between where the muscles connect and where the skin wrinkles (**Fig.18**).

I change the colour of my brush to a green tone and start to paint the veins, continuing to use the single brush. Then to finish off the texturing, I add some spots/freckles all over the character to give him a more realistic appearance (**Fig.19**).

For the eye texture I also do a projection (**Fig.20**).

For the render I start to configure the light, so I change some attributes here. I increase the Rays to 226, the Aperture to 105 and the Shadow's length to 500. I also turn on the ZMode to give a fake GI look (**Fig.21**).

For the shader I choose a TriShader from the materials palette and mix that with a free skin shader from the ZBrush Central MatCap library, making some changes to the intensity of the shader. For the eye, I simply use the toy shader from the shader palette.

And here the final result (**Fig.22** and **Fig.23**) – I hope you like it!

See you next month for an extreme pierced and tattooed character.

Note from the Editor:
Rafael has kindly provided us with some video footage from the creation of this character to accompany this tutorial article. There are seven accompanying movies that you can download (click on the Free Movies icon). Please note that due to computer problems the first stage of the sculpting process has been lost, so the videos concentrate on the detailing and texturing processes only.

Rafael Ghencev
For more from this artist visit:
http://www.rafestuff.blogspot.com/
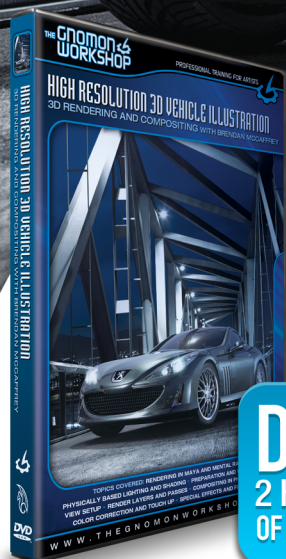Or contact:
rghencev@yahoo.com

Fig.22

Fig.23

"MY FINAL CHOICE BEING TO SET HIM IN A NET SOMEHOW, I STUDIED PASCAL BLANCHE'S WORK CAREFULLY AND FOUND THAT THE KEY WAS TO USE SHADOWS TO CREATE MOTION AND A SENSE THAT SOMETHING IS HAPPENING."

DINNER ON THE WATER
MAKING OF CHRIS CARTER

DINNER ON THE WATER

CREATED IN:

3ds Max and ZBrush

THE IDEA

The idea for this project was pretty loosely thought out. I wanted to create a blue crab: their colouring and organic shape seemed like subject matter that would challenge me at this stage of my 3D work, and it also seemed like a great way to learn how to use ZBrush. The upshot of not developing the idea further was that I had a lot of options when it came to how to use the finished model, but that advantage soon became a disadvantage when I got to the point where I needed a scene.
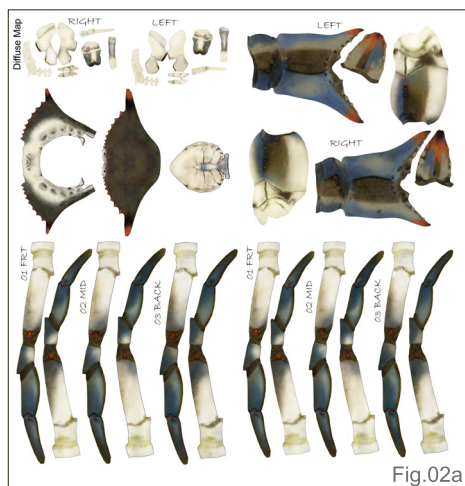

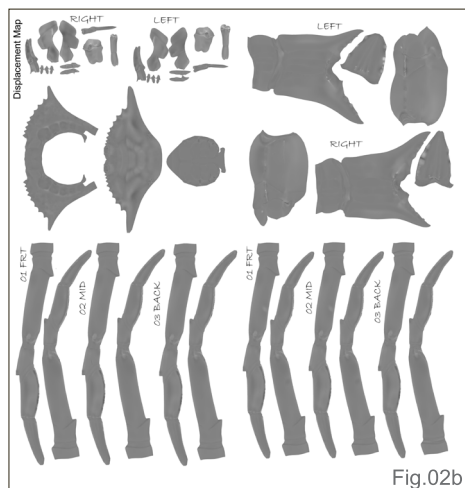
Base Mesh   3 SubDivs

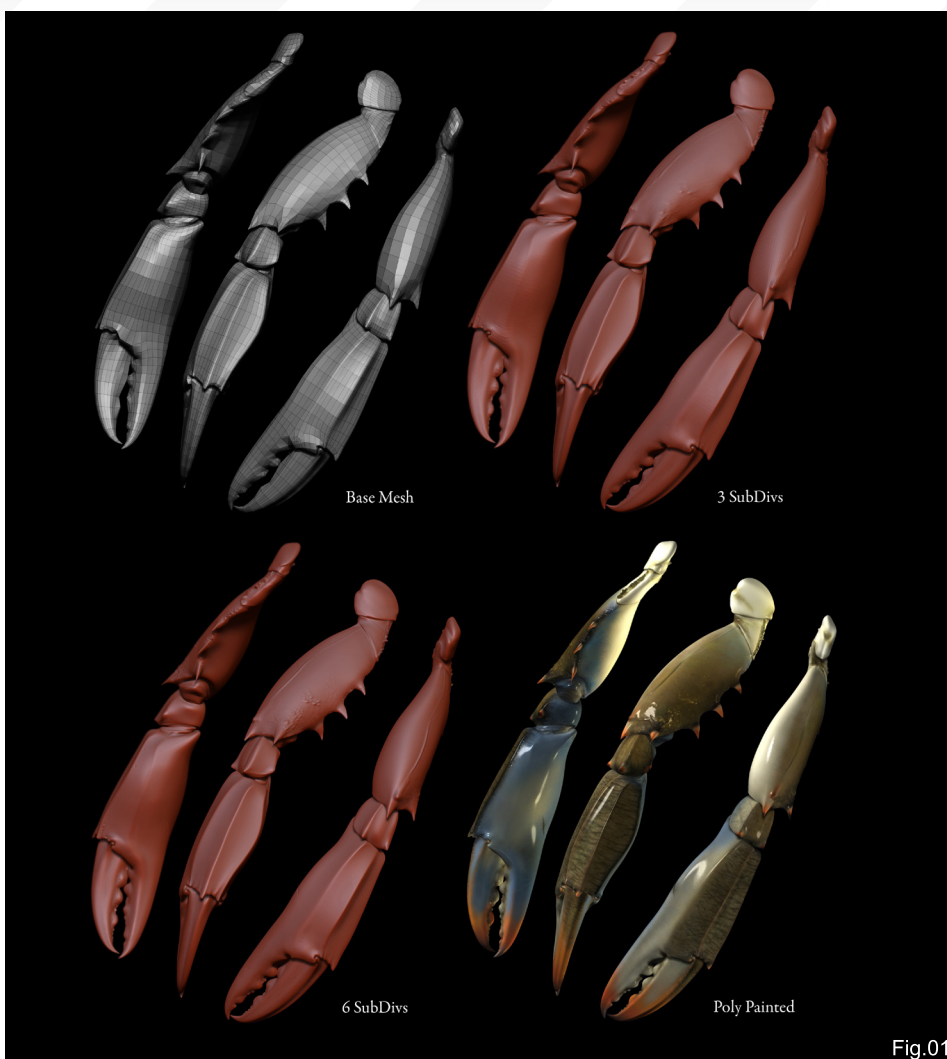6 SubDivs   Poly Painted

Fig.01

Fig.02a

I had certain techniques in mind for the project that I knew I wanted to use, so in a way the project was an excuse to learn these techniques. First, I wanted a challenging organic model to create. I also wanted to use ZBrush for the model and the textures. I wanted to develop some UV techniques I had recently learned, and

I wanted to feature sub-surface scattering in my materials. Furthermore, I wanted to develop my rigging skills a bit. And finally, I wanted to render to OpenEXR so I could make use of the exposure channel in post. I did accomplish all these goals and it made for an all-round crucial learning experience for me.
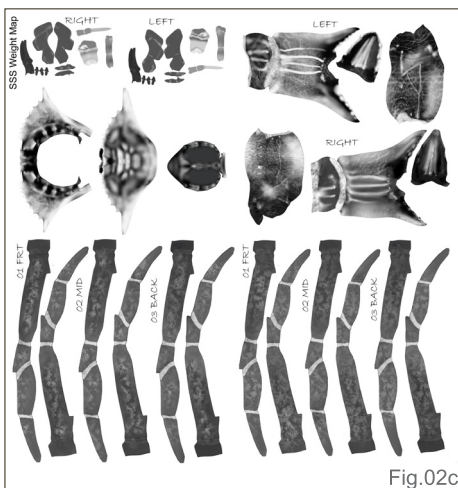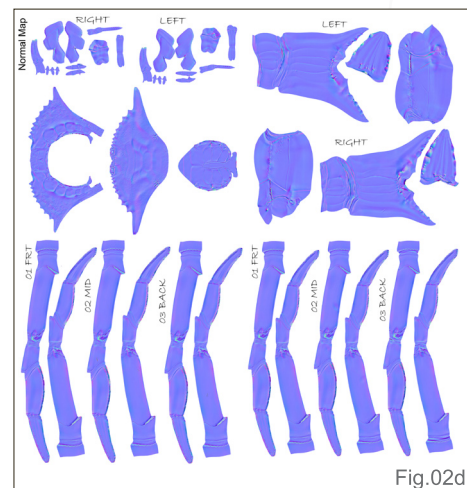

Fig.02b

Fig.02c

Fig.02d

MODELLING

The base mesh was done in 3ds Max, and from there I went to ZBrush. The whole experience was a learning curve in ZBrush, but I was able to make good use of a variety of tools. First, the crab was reassembled as a tool with SubTools to help maximise the amount of detail I could add. I overdid it a bit, but I now know how to temper that and use SubTools better in the future. I used custom alphas with various combinations of strokes to do the sculpting. For the hairs I used a ZBrush stencil, created in Photoshop. I guess the other feature I used all the time was the Transpose tool. This animal was perfect for it and I had been certain to have an edgeflow conducive to this feature (and a rig) beforehand. One of the 21 SubTools is shown in **Fig.01**.

TEXTURING

To paint each of my maps I used ZBrush again. Using all the aforementioned features, I completed the diffuse map first (**Fig.02a**). Then, for the greyscale maps (**Fig.02b**), it turned into an iterative process where, as I was creating my materials in Max, I'd return to ZBrush as needed to create SSS maps and specular maps and such (**Fig.02c**). Finally, the normal maps were exported from ZBrush, as usual, using the ZMapper (**Fig.02d**).

During this phase, and indeed throughout the iterative process of tweaking maps, I needed to deal with the issue of updating UVs in ZBrush by way of 3ds Max. In theory, the workflow is to export an .obj from ZBrush, cut the UVs, save the new .obj, and then import that .obj back into ZBrush, effectively replacing the base mesh with a new one that then has the correct UVs. This is done for each SubTool. For my purposes, I was using Roadkill as my UV un-wrapper – because it's awesome and free! But a huge problem arose when I needed to further edit UVs in Max after unwrapping in Roadkill – the end result would not import back to ZBrush, no matter what. When I took it in and replaced the

New UVs by Way of 3ds Max 9

Step 1: first subdivision Level in ZBrush exported as a .OBJ.

Step 2: .OBJ imported into 3ds Max 9.

Step 3: UVs edited and mesh exported to a new .OBJ file.

Step 4: The .OBJ exported from 3ds Max 9 is imported into ZBrush, replacing the first subdivision level.

New UVs by Way of 3ds Max 2009

Step 1: first subdivision Level in ZBrush exported as a .OBJ.

Step 2: .OBJ imported into 3ds Max 2009.

Step 3: UVs edited and mesh exported to a new .OBJ file.

Step 4: The .OBJ exported from 3ds Max 2009 is imported into ZBrush, replacing the first subdivision level.
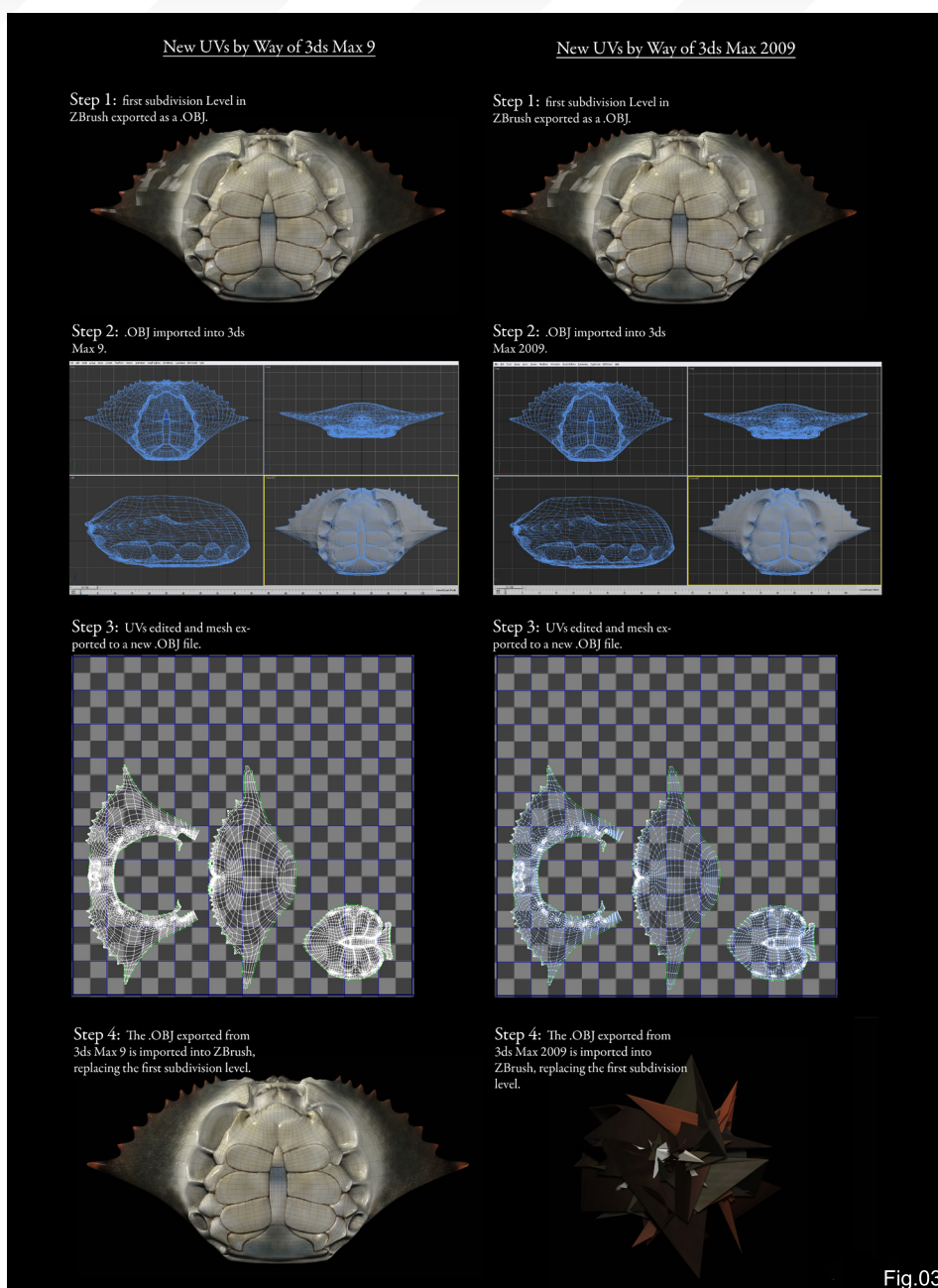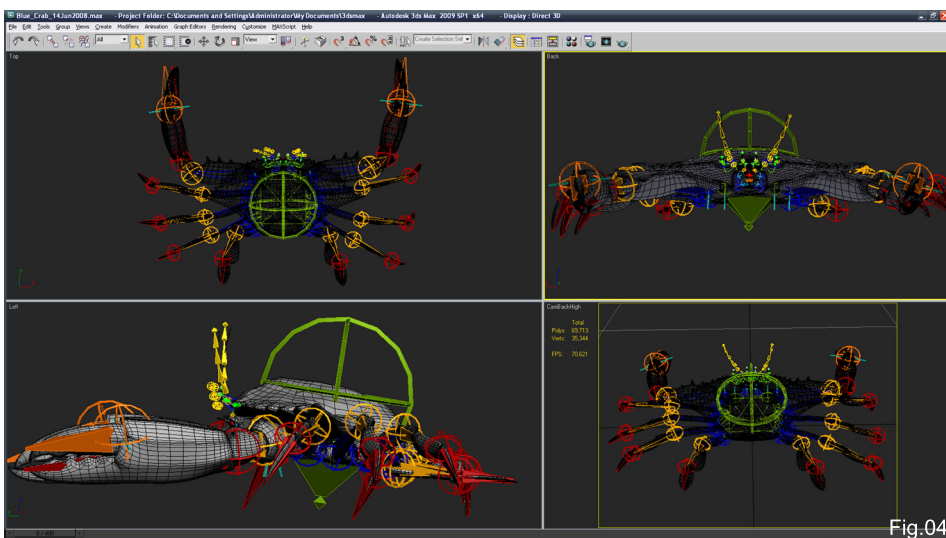
Fig.03

Fig.04

base mesh, the faces would go berserk! This was using 3ds Max 2009, but I knew full well the process worked with 3ds Max 9. So that was my solution: to get .objs with edited UVs back into ZBrush I had to go back to 3ds Max 9. I never found a solution involving 3ds Max 2009. This problem is illustrated in **Fig.03**.

RIGGING

I wanted this rigged before I tackled the materials. This would facilitate poses and such that would help me see my materials better when I rendered. This rig was nothing fancy, just bones and controller objects. However, by adding in animation controllers I was able to create muscle systems for the eyes and antennae, which I thought would be handy if I chose to use this in an animation later (**Fig.04**). The skinning probably took the most time during rigging. I hate 3ds Max's envelopes and much prefer to assign specific, normalised weight values to the vertices. I find I get much more control that way, and with this situation I had
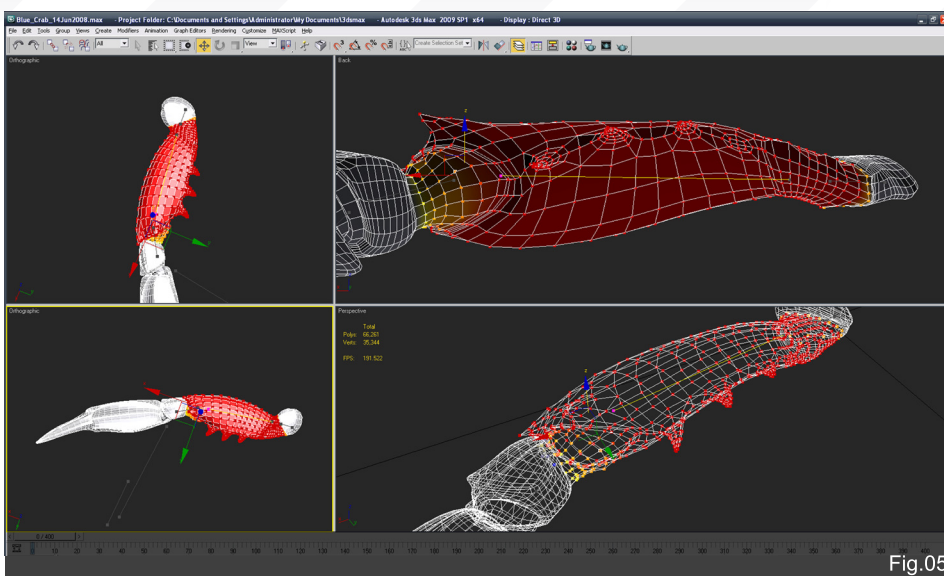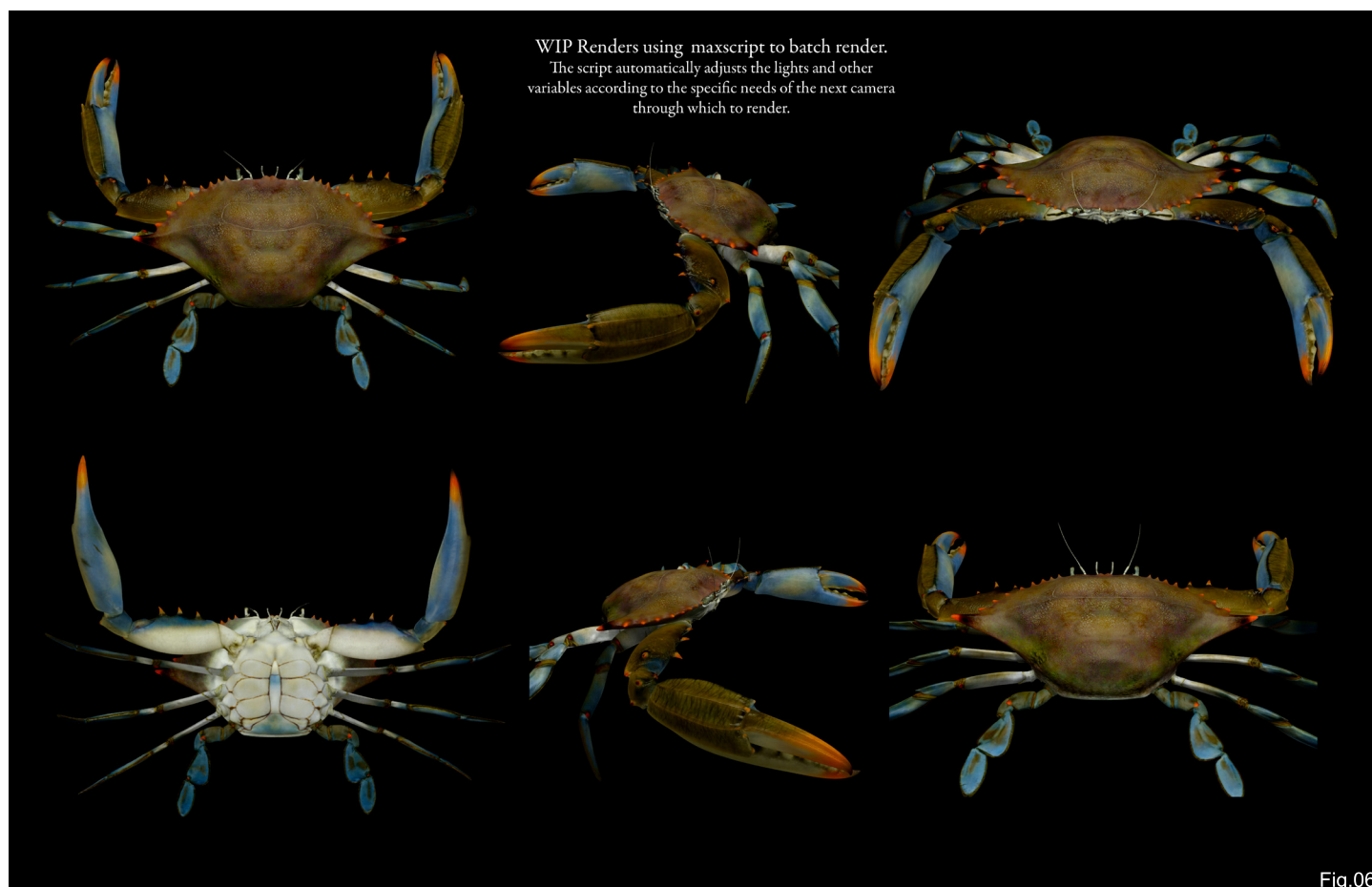

Fig.05

meshes featuring rigid and flexible surfaces all at once, as seen in **Fig.05**. The muscular areas of the crab bend with a very realistic motion as a result. One big thing to note here is that if you're not modelling using edge-loops, it can be much more difficult to take advantage of this vertex weighting approach because the selection tools are set up to let you select loops and rings, and

the selection sets are not connected to any other sub-object selection sets in Max.

MATERIALS & LIGHTING

The materials were another challenging area for me, as I was pretty new to SSS in general. There are some Gnomon tutorials out there that I found essential to learning this skill (they're for

WIP Renders using maxscript to batch render. The script automatically adjusts the lights and other variables according to the specific needs of the next camera through which to render.

Fig.06

Maya, but it's all Mental Ray anyway). Once I had decided on the Mental Ray – SSS Fast Skin with Displacement, I began the iterative process mentioned earlier of moving between Max and ZBrush as needed, to develop the maps. I found the SSS weight map to be incredibly sensitive, such that just a shade or two of difference in the grey causes wildly varying results in the degree of light allowed through the material. I found that it was useful to tweak my output curves for my weight maps in the same way that one must for the displacement map with Mental Ray. This allowed for more flexibility of these SSS maps inside Max, without having to run back to ZBrush or Photoshop every time an area was too dark or too light.

Otherwise, a variety of other issues arose with the materials. One was that the Mental Ray – SSS Fast Skin with Displacement takes forever to render – with or without a displacement map in it – because the shader always tries to displace. The obvious solution was that, for test renders, I used a regular Mental Ray – SSS Fast Skin. I wrote a quick Maxscript that would convert a given material from Mental Ray – SSS Fast Skin with Displacement to Mental Ray – SSS Fast Skin and back again on-the-fly, so that I didn't have to copy my settings each time I made big changes and wanted to render again. The last challenge here was that, as I was creating materials, I needed my test renders to be from many angles, but for SSS that required moving the lights to get better back-surface lighting. I could have done batch rendering, but that doesn't let me move the lights, so I wrote another Maxscript for this issue. This Maxscript would basically select the render camera, move the lights as needed for that camera, render and save, and then do it again for the next camera. For the sake of simplicity, I rigged the lights as well, so they rotated position via a single controller object. I had about ten shots every time, so this allowed me to run the script and leave it be for a bit without needing to intervene. The results of this script can be seen in **Fig.06**. The script itself is shown in **Fig.07**.

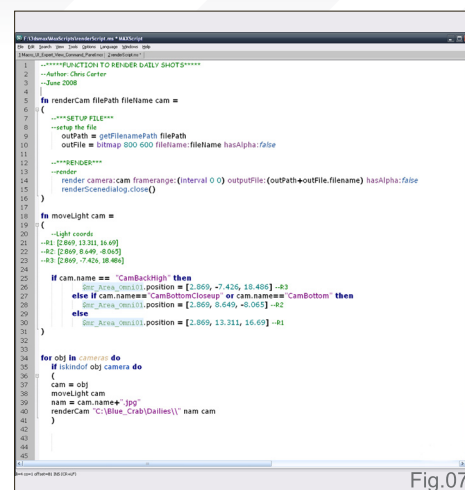The final lighting was determined by the scene, but it was always very similar. I used a simple

Fig.07

Mental Ray work flow, where foremost all objects are created at real-world scale. Then I set up direct light, normally in a three-point lighting system. I toyed with using indirect lighting but decided that a fill light would do, and that Final Gather and GI were unnecessary. Things were taking long enough as it was! My direct lighting workflow is very straightforward. I place a light, be it a point, directional or spot. Then I adjust value for brightness; I try not to touch the multiplier unless I have to. I take the shadow density down a bit. Then I soften shadows by adjusting the radius with respect to the size of the objects to be lit, and the distance of the light from the objects. That's mostly it for direct lighting. For indirect lighting, the workflow is more iterative and since I didn't use it here, I'll not detail that now.

DEVELOPING THE SCENE

As I said, I did not conceptualise the scene at first, and as such I spent time kicking around various ideas for this part. I made a row boat at one point. I think I also made a dock. My big issue with this was getting a crab to appear engaging. It still doesn't, in the end, but at least it's less static then it would have been. My final choice being to set him in a net somehow, I studied Pascal Blanche's work carefully and found that the key was to use shadows to create motion and a sense that something is happening. I repeated that here and feel that it helped greatly. **Fig.08 – 09** show several of the ideas I considered for my scene.
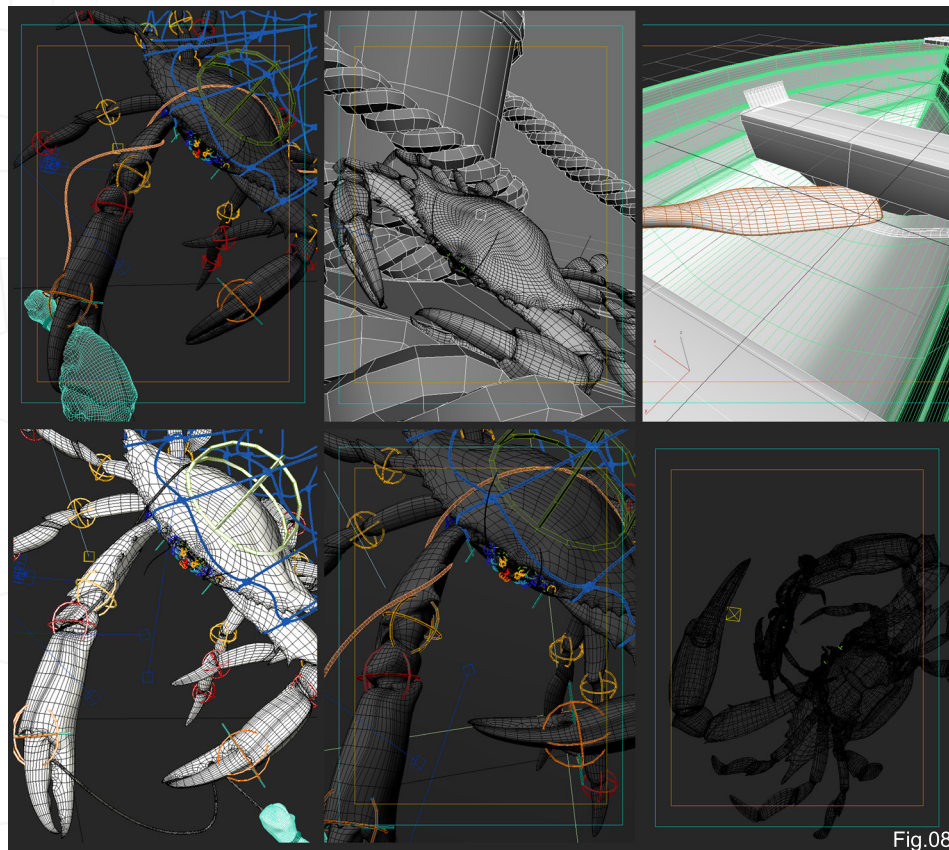

Fig.08

RENDERING TECHNIQUES

Rendering the scene was murder at first because I had some tricks to learn. I'd have a good deal of render power for one scene and it was nonetheless not rendering; it would die or just go on forever. I was baffled for a bit, but then I had an epiphany about two things: displacement map implementation and light map size.

I was rendering at 6144x4608. That led me to look at the edge-length in my displacement settings where I had been using a value of 0.5. Too much edge length combined with too many mesh subdivisions was way over done. I found that, because of the large size, a value of 2.0 was fine. I also took all my Turbosmooth iterations down to a value of 1.

Next there was that light map. Looking at the Mental Ray message window told me I was spending a lot of time regenerating light maps and, sure enough, I had left it set at 50% of the render size in all my materials, so I calculated that a light map at 50% of a render at 2048x1536 would make a 1K light map. My renders took so long because I was making nearly 4K light maps for every material. I cut the

Fig.10

Fig.09

value down to 14.8%, which made roughly 2K light maps. With these improvements, renders came down to about two hours.

POST PRODUCTION: PHOTOSHOP TECHNIQUES

I brought it all together in Photoshop. I was rendering to OpenEXR. This let me build up layers of renders with different exposures in Photoshop, where I selectively masked to get better values and colour. Another trick were the shadows. In addition to the OpenEXR, I had rendered out passes, but the shadow pass was a bit choppy for some reason. My solution was to take an earlier greyscale render and use it as an inverted mask in Photoshop to effectively create a shadow layer. This proved a powerful

technique and let me adjust the shadows very freely as a result. I did something similar to tweak the specularity (**Fig.10**).

CONCLUSION

This is one of those works that I could have (and should have) spent much more time on. I would like to have seen what I could do to really bring this creature to life in a more appropriate environment. I might mess with that someday. But if I could point out the most important thing I learned on this, it is to spend more time in the planning phase – doing thumbnails and concept art and working with colour combinations so I have a better sense of where the project is going. If you know where you're going, you can try to get there more directly.

Aside from that, I feel like I'm at a stage right now where I can tackle projects of this scale more readily because of what this one has taught me. I'm much more enthusiastic about Mental Ray now, and even 3ds Max, but it took a long time to get to this point. Sometimes it seems like 3ds Max gives you all the plans and many of the parts for a great 3D app. and you just have to figure out how to put them together into what works for you. But I'm there now. A word to the wise: to work better in 3ds Max, make a custom Quad and make Maxscript a cornerstone of your toolset.

Chris Carter

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MAKING OF BY OLLI SORJONEN

ENFORCER

In this article, Olli Sorjonen takes us through the processes that led to the creation of his character, "Enforcer".

"I THINK IT'S IMPORTANT THAT YOU ALWAYS CHECK PHOTOS OR ANY REAL SOURCE MATERIAL YOU CAN GET YOUR HANDS ON. THAT WAY YOU DON'T END UP WITH CLICHÉD IDEAS OR ANY REPLICATED MISTAKES."

MAKING OF ENFORCER

CREATED IN:

Silo, ZBrush and Photoshop

INITIAL IDEA

I wanted to create a slightly stylised UN soldier of the not-so-distant future. I first visualised a concept in my head and then started to gather reference material. I think it's important that you always check photos or any real source material you can get your hands on. That way you don't end up with clichéd ideas or any replicated mistakes. On the other hand, if you rely on reference material too heavily, then you might get stuck and fixated on tiny or secondary things that don't really matter. So it might be good to first do a visual study of the subject to define what you want to see in the finished picture – not just a rough sketch which might leave too many questions open.

I wanted to make many details in the "old fashioned" way – modelling the hard body
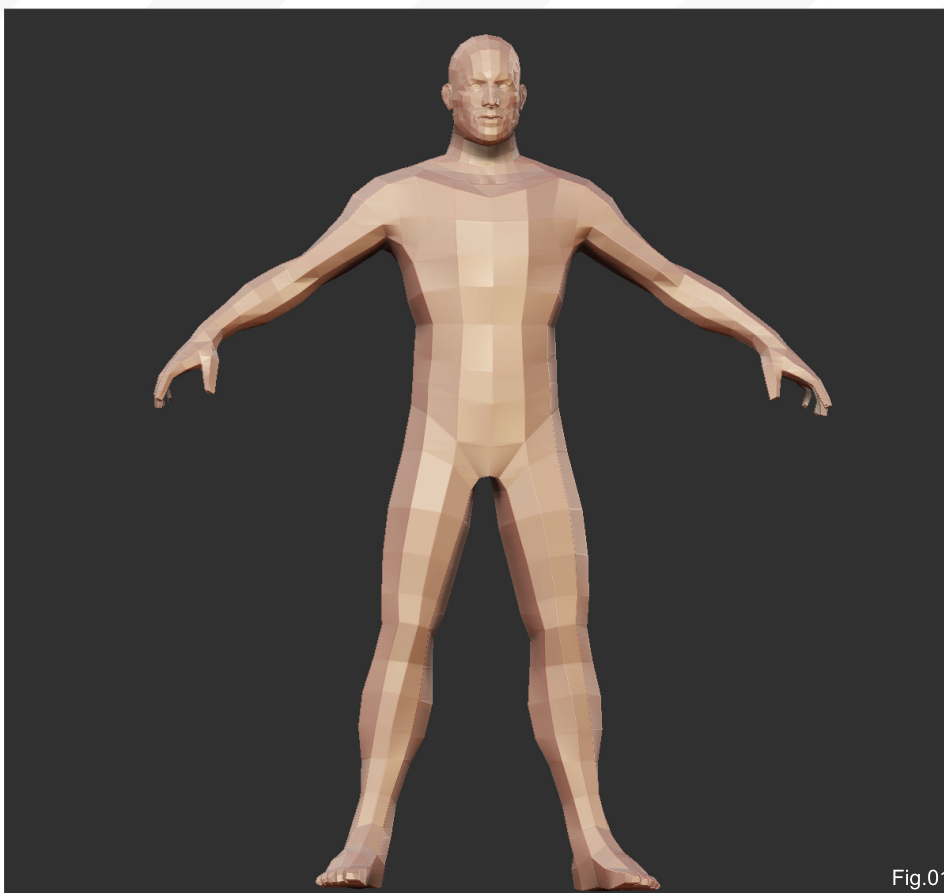
Fig.01

objects accurately, and not sculpting them, as is often done for game models. I don't think this approach works too well for high resolution characters as you end up with smudgy, blobby

Fig.02

parts that resemble more of a wax sculpture than an actual machined metal or plastic item.

When I had gathered parts that I thought looked good, I then started to mix and match, testing what parts and style of accessories and weapons would actually work together. I also had some sort of realism issues in mind; how the clothing would serve its purpose in use, and how weapons could be accessed and used, etc.

MODELLING BODY & HEAD

I worked on this model on and off during a long period when I had some spare time available. I started with a custom body mesh (**Fig.01**), later cutting the base mesh head out and replacing it with a separate head model so I could achieve more detail to the head without going into too high resolution (**Fig.02**). Note: I UV-mapped the base mesh in advance.

I decided to build the model into a pose that I could rig relatively easily, to allow some posing and basic movement without certain areas

Fig.03

breaking up too much. I didn't spend too much time on modelling the body; I mainly tried to get the overall proportions and mass how I wanted them to be. After all, the body was going to be mostly covered by clothes, except for the arms and head. The body would provide an important template upon which I would build all the clothes and accessories.

The head went through a few stages of evolution until I ended up with the slightly stylised look that I wanted (**Fig.03**). I wanted to avoid the use of a bump map and made the skin details directly on the sculpt, which were then baked into a displacement map.

Fig.04
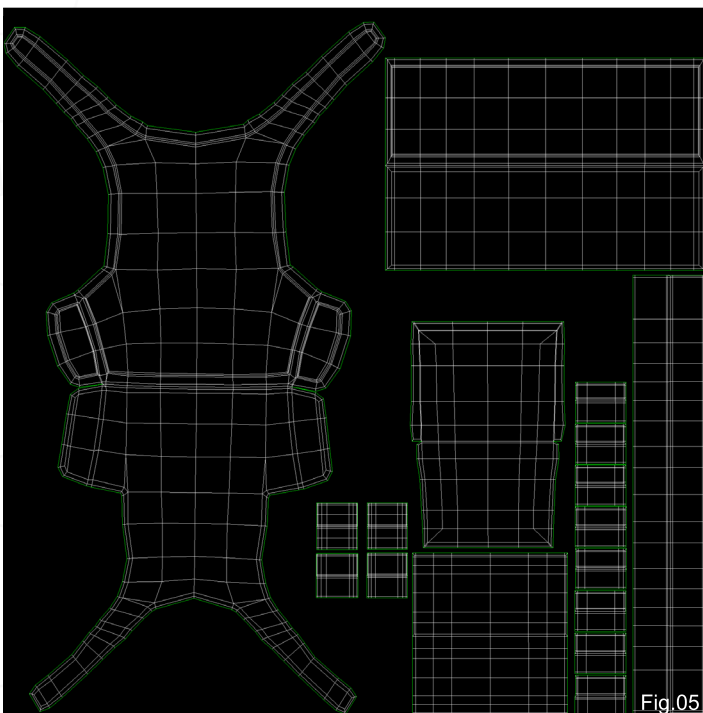
Modelling the Combat Vest & Other Accessories

I started working on the details literally from the ground up; first the boot and then the trousers. It was probably not the most effective way of working, but this was my "spare time" project and so I took the time that I wanted to give. I created base meshes for all of the clothing and accessories, modelling most of the seam creases, chamfers and bevels so that I wouldn't have to sculpt them in ZBrush. This way I could get a clean and neat end result (**Fig.04**). I built the hard body details like the plastic locks, rings and buttons with the same method.

In short, I used the same kind of methodology for all parts – trousers, shirt, gloves, combat vest, pockets and kneepads – just going through the initial draft meshes and building seams and details. You can find many tutorials on 3DTotal about how to do these kinds of details, so I don't want to go into that too much in this article.

Fig.05

Most of the accessory parts I built with solid 3D geometry, with thickness and backsides to avoid problems in the final render stage; however, some of the relatively thin details I made as 2D surfaces and used double-sided materials for them as they are 2-3mm thick in real life.

Many parts were modelled by acquiring the shape from the base surface, like the body. I took a copy of the mesh, then used cut or connect to extract a surface for straps, for example. Then I refined these surfaces with edit poly tools. This way I could easily build a shirt, combat vest, pockets, and most of the other details, saving the hassle of starting from some primitive shape, like a box.

I also spent quite a while moving and adjusting certain surface areas so that they didn't intersect much and would give the layered clothing a realistic look. When I had the base meshes ready, I checked them with a homemade tool made by my brother, Sami (a set of analysis tools for bad modelling). After this, I ended up with a neat tri- and quad-poly mesh that could be sculpted on in ZBrush with no worries.

I used standard 3ds Max UV mapping tools; I made all parts unique with no overlapping to enable artefact-free baking (**Fig.05**).

Weapons

I spent quite a lot of time on hard body objects, creating the details and functional parts that would fit together neatly. I also built the seams and chamfers in real scale, not exaggerating

Fig.06

Fig.07

Fig.08

Fig.09

Fig.10

Fig.11

them. They might not show up in these smaller renders, but I felt it would provide a bit more realism. I built most of the meshes to the actual resolution I'd render them in, so they would work without any subdivisions. And I designed the additional P90 weapon system modules myself, based loosely on real designs, and built all of them on an accessory rail where they were attached with bolts (**Fig.06 - Fig.10**).

I modelled the pistol, grenades and knife with the same kind of approach. Weapons were UV-mapped in the same fashion as the other objects (**Fig.11**).

Fig.12a

Detailing the Meshes

The fun part began here! I exported all of the parts separately and sculpted all deformations and shape details in ZBrush. When I was done with the detailing, I baked the displacement maps in ZBrush and applied them directly to level 0 or 1 subdivision of the base meshes in 3ds Max. I painted away any baked artefacts in Photoshop (**Fig.12a** & **Fig.12b**).

Texturing Fabrics & Mechanical Parts

First I set up a temporary scene where I baked AO maps for parts that I thought would need them (**Fig.13** & **Fig.14**).

Fig.13
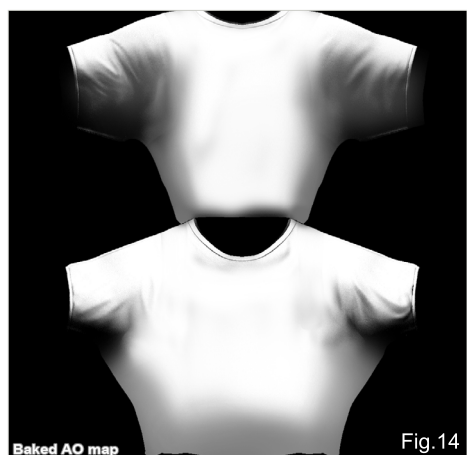
Baked AO map
Fig.14

Fig.12b

I started with the fabric for clothing and accessories, as I felt this would be the hardest part to get a nice looking material for, which would work fine in close-ups, too. I started digging through my closets at home, looking for various materials that I could scan – camera bags, old military belts and T-shirts. I then scanned them in at high resolution, after carefully flattening and tightening the material under a large book. This way I was able to get very neat textures that had even lighting and no lens curvature, blur or optical artefacts (**Fig.15**).

Next I made the textures tile-able. After this I made normal maps and displacement maps for the canvas materials in CrazyBump (beta version – I really need some money to buy the final version!). Stitches and dirt were made with

separate texture layers so that I could achieve good, detailed fabric patterns in close-ups too, without wasting too much memory (**Fig.16 - Fig.18**).

Texturing Skin

Colour textures for the skin were created in Photoshop, mostly painted, and I also used some noise and skin patterns from photo material (**Fig.19**). The majority of the skin details originated from the displacement map of the head, which I processed with levels, and after that I ran a high pass filter on it to get neat skin details. I then overlaid this image on top of a pretty low resolution colour layer. This saved me the hassle of creating a bump map, too, as I used displacement to render all the high frequency "bump" details (**Fig.20**).
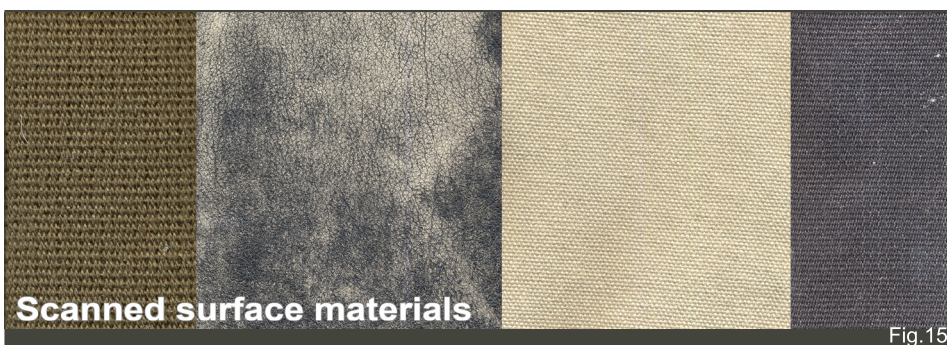
Scanned surface materials
Fig.15

CHARACTER SETUP FOR POSING & RENDERING

I used a biped and skin modifier to create a simple rig for the character so that I could pose it with ease (**Fig.21**). I carefully weighted the vertices so that the different parts wouldn't self intersect. With some planning and neat geometry you can get quite a nice range of movement without serious break-ups! I also added a few extra bones for protruding parts that weren't deformed naturally by body envelopes. One good idea is to create separate skin modifiers for separated items; this might speed up your rig a bit, too. Small parts like metal rings, plastic locks etc. were skinned. Larger accessories like grenades and the radio were linked to the closest bone.

STUDIO SETUP

I used a simple studio setup using a floor that had a transparent gradient which faded at the edges; this way it blended into the backdrop (**Fig.22**).

Stitch mask — End result
Fig.16

Fabric surface setup
Fig.17

Wireframe — AO — Reflection — Color — Multi purpose mask
Fig.18

Color — Reflection — SSS mask
Fig.19

Fig.20

Studio setup — Keylight, "Sun" — "Light plane" — A few point lights for highlights etc — Sky Light, "Fill", a HDRi map on it
Fig.22
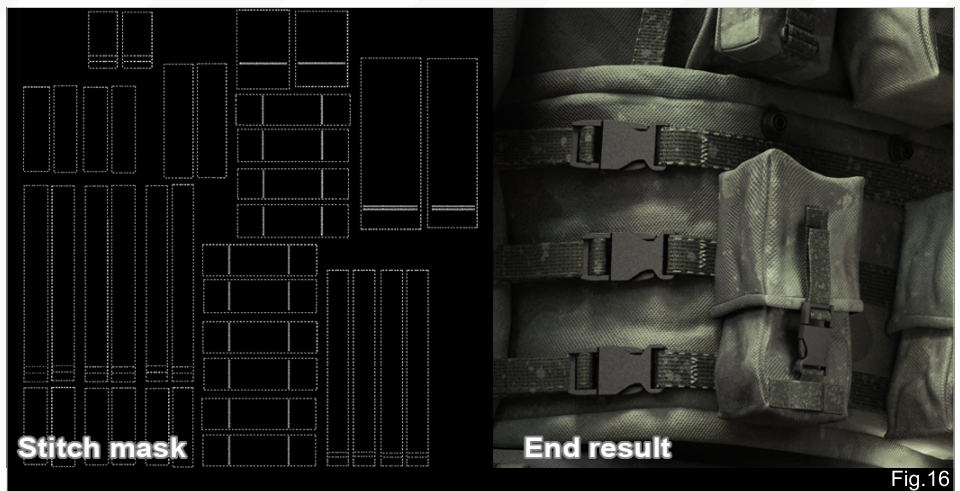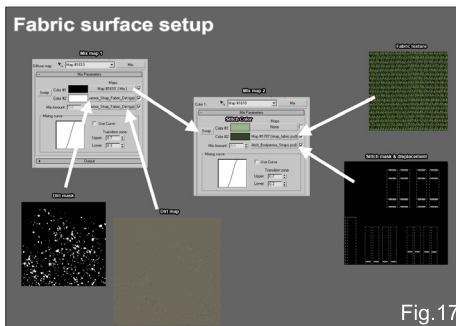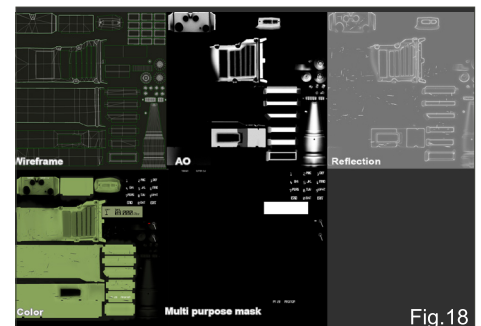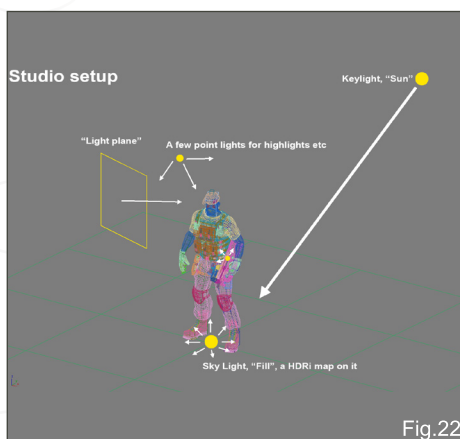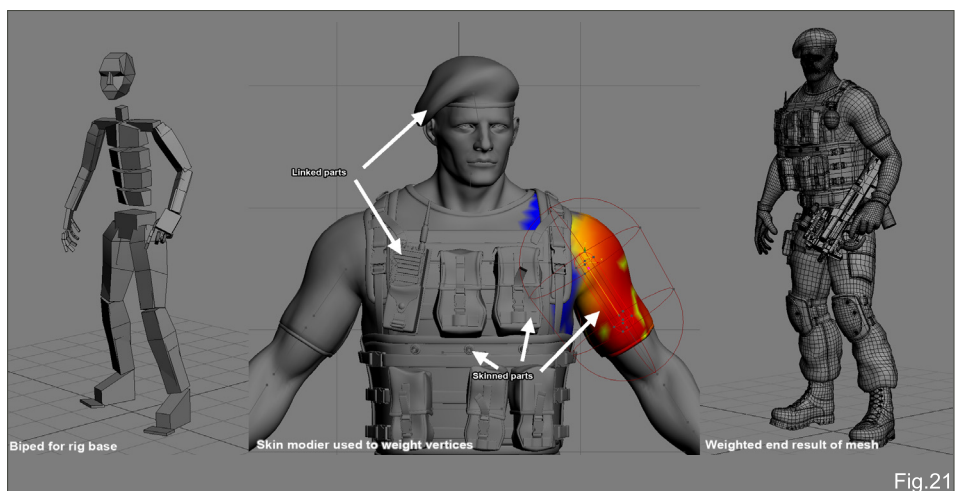
Biped for rig base — Linked parts — Skinned parts — Skin modier used to weight vertices — Weighted end result of mesh
Fig.21

I used a physical sky shader to create the background colour gradient. Direct light was used to create the main light source. I added one area light that would be reflected in the eyes and metal parts. Skylight with a HDRi map on it was used to soften the key light's effect and to make the lighting a little more varied. I also added a few point light sources to create more interesting reflections and highlights.

Colour Correction

The final image was composited and colour corrected in Photoshop; some sharpening was applied and a glow effect was created with an additional layer. No other post work was done (**Fig.23**).

I tried to make the colours more dynamic and impressive, so I adjusted the contrast and brightness quite a lot, and then applied a curves layer to alter the colour palette towards a more yellow/green colour. I then de-saturated the

Color correction setup

Fig.23
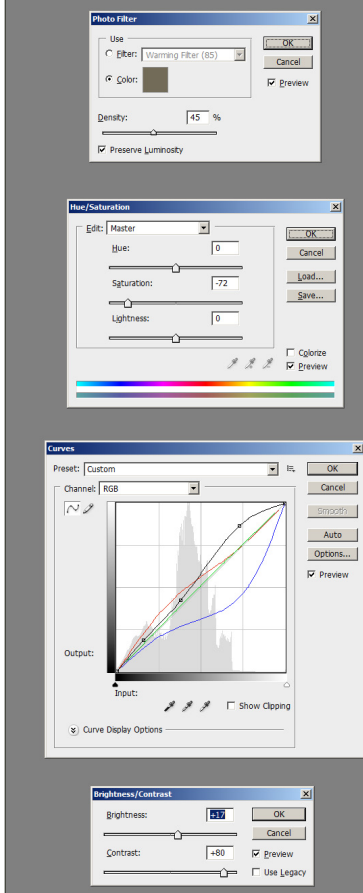
Fig.24a

Fig.24b

Fig.24c

image more to get a more monotonous and militaristic feel, and finally applied a photo filter to tone the image with a dull green colour (**Fig.24a** - **Fig.24c**).

I think the character ended up how I wanted it to be and I managed to achieve the resolution and precision in the close-up views of the character, without making the overall feel heavy or clumsy (**Fig.25**).

I hope you've enjoyed this making of - thanks for reading!

Olli Sorjonen

For more from this artist visit:

http://www.cgmill.com

Or contact:

olmirad@sci.fi

Fig.25

model printing

your model in the palm of your hand!

3d model printing service

'3DTotal Ltd' partnered with 'Growit Llc' and very pleased to be able to offer this new service, providing high quality physical 3D prints of your models. Due to advances in the 3D printing technology we are now able to create such high quality models at very reasonable prices, combining this with worldwide shipping, this model printing service is now becoming available to everyone.

This service uses machines that grows or "prints" the models in layers as small as 16 microns (.0006 inches) or 1/64th of a millimeter, four times smaller than a typical human hair and nearly 8 times more accurate than the industry standard of 125 microns (.005 inches). At this level of detail, we can build parts as large as 500 x 400 x 200mm (19.7 x 15.7 x 7.9 inches). Because we are using such small layers, the smallest in the industry, we nearly eliminate the stairstepping affect that is typically seen on rapid prototyped parts.

DIGITAL ART MASTERS
VOLUME 3

With the release of 3DTotal's new book, *Digital Art Masters: Volume 3,* we have some exclusive chapters for you...

This book is more than just an artwork book. Not only does it feature full-colour, full-page images, but each artist has given a detailed description, in their own words, of the creation process behind each piece of published artwork. And they've done it especially for this book!

This month we feature:

"Dragontfly"
by Denis Tolkishevsky

The following shots of the "Dragontfly" book pages are featured here in full-resolution and can be read by zooming in...

DragONtFLY
By Denis Tolkishevsky

Introduction

I created the first version of this work in 2006. At that time, a website was holding a contest for the best "mechanical toy" and I decided to show that it was possible to create graceful things using rough tools. One of the conditions of the contest was the presence of clockwork. I decided to create a mechanical dragonfly and tried to get a feeling of olden times. I didn't have enough experience in the adjustment of materials and lighting, so the final image wasn't of a high quality. After a year, however, I decided to return to the piece and finish it. I didn't change the model of the dragonfly, but all the other models, materials and light were changed. I added many details which were not in the initial image and I carried on with this work for about a month in total (only in my free time). I'd like to share my experiences with you.

Modeling

I used poly modeling to model almost all the details of the scene. I usually start by creating primitives (boxes, cylinders, planes and so on). I then applied an Edit Poly modifier and achieved the necessary forms and specifications with the use of poly modeling tools (extrusions, bevels, chamfers, cutting and so on) and modifiers (Symmetry, Bend, Shell, Twist, Noise, Displace, Turbo Smooth and so on) (Fig.01).

I decided to use Displacement to create stamping on the rim of the magnifier and on the metal container (to gain extra experience in this area). I required a displacement
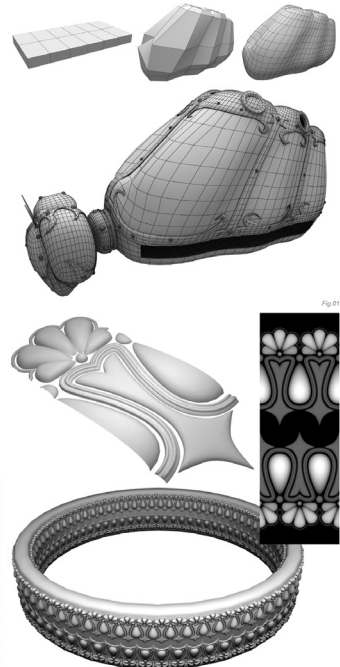
Fig.01

Fig.03

Fig.02

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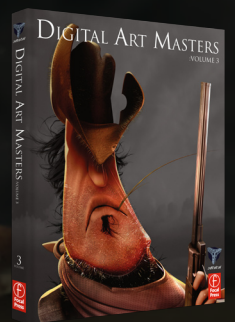
map and so created it by modeling a repeatable section of geometry and rendering a Zdepth map (Fig.02). I then used a Cloth modifier to create a rag with the subsequent manual editing of the vertices.

Materials and Texturing

I spent about half of my time on the creation of materials, as I consider bad materials spoil any model – even the best ones! Therefore, I gave greater consideration to the creation of materials. All the textures used in this work came from my private library. Some were photographed especially for this project, for example the wood texture for the table, the fabric texture and so on (Fig.03). I created some textures in Photoshop, for example the paper with inscriptions and a figure on it, as well as a texture for the scratches on the hammer and so on.

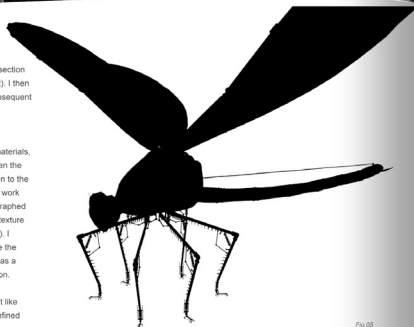For this work, I didn't use Unwrap UVW as I don't like to do it and always try to avoid it if possible. I confined myself to using base mapping (planar, cubic, and cylindrical) and Multi/Sub-Object materials.

Fig.05

I spent a lot of time creating the realistic materials of the glass lens and the metal hammer, because using the parameters of these materials close to their physical characteristics didn't give the desirable results, and instead I had to do it by guesswork.

Lighting and Rendering

I used a planar V-RayLight for the basic light source (light from a window) in the scene. So that the light source looked like a window, I positioned two crossed boxes to simulate a window. For the environmental light and reflections I used an HDRI map.

The base image, with a resolution of 2700 by 3672 pixels, was rendered in about four hours on my computer (Pentium IV-3000 with 2GB of memory). I used V-RaySincFilter for an antialiasing filter, Irradiance map for the Primary GI engine, and Light Cache for the Secondary GI engine.

Post Production

I decided to highlight the dragonfly because there wasn't enough contrast when the final render was ready (Fig.04). I needed a mask to repeat the contours of the dragonfly and to separate it from the other image. I made all the objects invisible, except the dragonfly, in 3ds Max, and assigned a black material to it. I then disabled all light sources and made a white background, and rendered the image with a mask to separate the dragonfly from the background (Fig.05).

Fig.04

I made the dragonfly lighter and the background darker by using a mask in Photoshop and then increased the contrast of the image. I decided to create the depth of field in post production to save rendering time, for which I used Zdepth. Two maps were rendered. I took, as a minimum parameter, the distance from the camera to the nearest visible object, and as a maximum parameter I took the distance from the camera to the center of the dragonfly for the first card. For the second one I took, as a minimum parameter, the distance from the camera to the center of the dragonfly, and as a maximum the distance from the camera to the furthest visible object. I then combined them into one by way of mixing the layers using the "Screen" blending mode (Fig.06), and then used this image as a mask for applying Lens blur. I understand this method is not correct from a physical point of view, but the final result suited me fine. I applied Volume Light and Dust in Photoshop as a separate layer using Screen mode. Previously, a layer (Fig.07) was created in 3ds Max and the additional source of light with Volume Light. I applied a black material to all the objects of the scene and rendered the image.

Conclusion

I have come to understand many things during this work which could be made in alternative, better ways, but I'm not limited to any terms in my personal work. I always try to use unusual ways of working to get additional experience in 3D, and I also try to find ways to speed up achieving the final image! I hope after reading this you will understand some of my methods of working, and perhaps you will find something useful for yourself!

Artist Portfolio

Fig.06   *Fig.07*
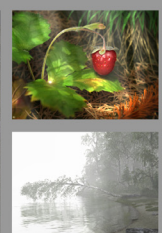
All Images © Denis Tolkishevsky

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3DC

Here is what's in next months issue of 3dcreative

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Image : Alter

Creating a Complete Scene From Concept to Render

3ds max

This series will run over the next six months and will endeavour to give you an insight into how a fully realised 3D scene may be arrived at from beginning to end. The tutorials will attempt to address the key issues and techniques appropriate in achieving this, from concept sketches through to building the 3D scene, mapping and unwrapping, texturing and eventually to lighting and rendering, culminating in a final render. The emphasis over the course of the series will be on the texturing, which will be covered in two of the six instalments, and principally the aging and wear of materials.

The schedule is as follows:

Issue 037 September 2008
Part 1: Importance of Reference

The series will begin with a look at the gathering and importance of reference material, and then transposing these into some concept sketches and a concept / production painting.

Issue 037 September 2008
Part 2: Modelling Overview

This chapter will go on to deal with a general modelling overview, which will be non-software specific, and then follow with a look at Photoshop and some general preparation of textures.

Issue 038 October 2008
Part 3: Preparing the Textures

This chapter will focus on Photoshop and more specifically, the job of preparing textures, including painting out seams and making images tileable.

Issue 039 November 2008
Part 4: Mapping

This chapter will focus on the mapping and unwrapping of your scene

Issue 040 December 2008
Part 5: Texturing Principles

This chapter will focus on texturing principles and will cover texture resolution, bump specular and normal maps along with combining textures. It will also cover using masks and adding dirt and grime

Issue 041 January 2009
Part 6: Lighting & Rendering

The final chapter will discuss lighting and rendering techniques and show how a simple lighting rig can be set up, along with different render passes ready for a final composite in Photoshop.

3ds max

3dcreative

AGED & WEATHERED ENVIRONMENT
Creating a Complete Scene from Concept to Render
Part 4: Mapping

MAPPING PRINCIPLES

This tutorial will focus on the issues of mapping and unwrapping our scene in preparation for the texturing phase. I think of this as the invisible bridge between modelling and texturing and although it is concealed in the final result, it is no less important. Without properly unwrapped geometry, we are afforded less control over the texturing process and cannot so easily localise detail. There are a number of mapping methods and the appropriateness of each will depend on the shape of your object. It essentially involves projecting a texture onto the surface of the mesh in order to describe its properties.

The first step is to apply a material to your geometry, which is done by dragging one of the slots onto your object from the Material Editor. In **Fig.01** the bottom left slot has been applied to the building platform, hence the four white triangles in the corners (outlined in red). Before you UVW map your object, you will require a
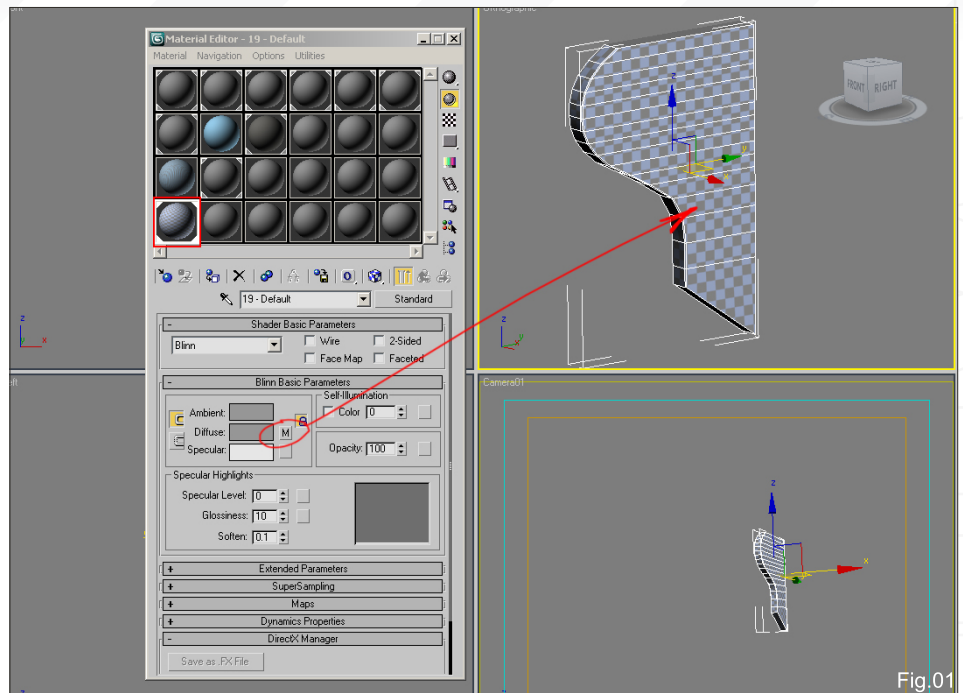
Fig.01

gauge in order to measure the accuracy of your mapping – in this case a checker map. In this instance it has been applied as a Bitmap texture in the map channel (ringed in red) but you could alternatively select a Checker map from the same list. This will act as our guide in checking the integrity of our mapping co-ordinates. The idea is that if the squares remain consistent, there will be no distortion when the final texture is applied. In **Fig.02** you can see how the distorted checker map corresponds to the
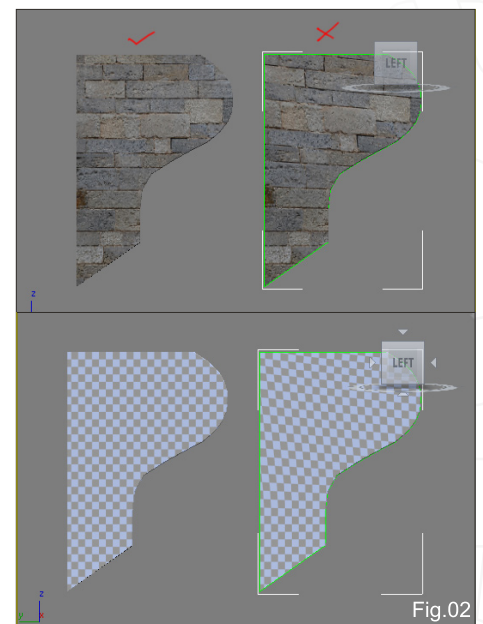
Fig.02
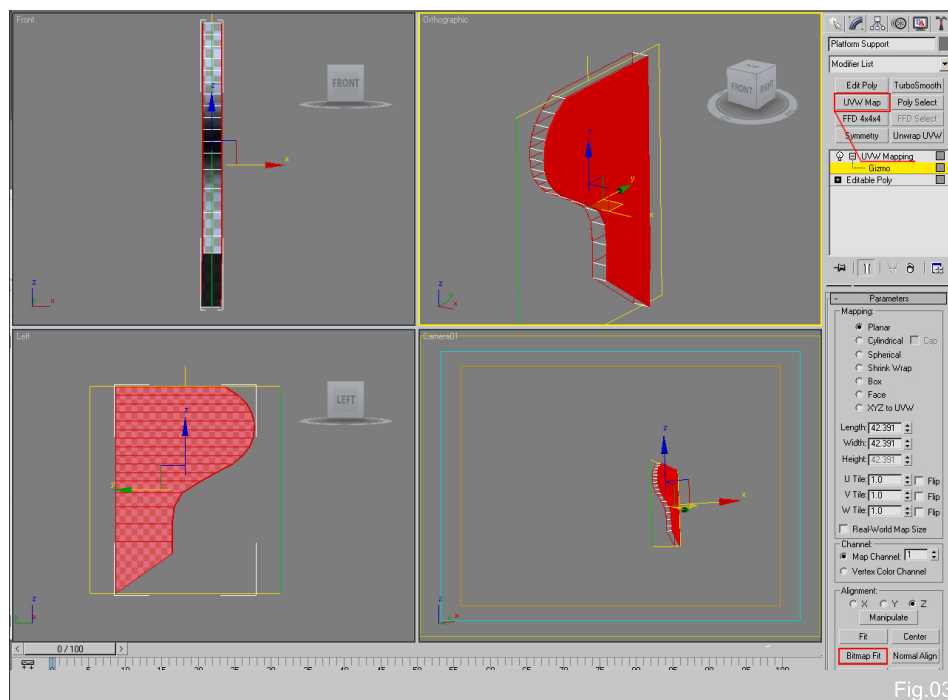
problems on an eventual stone texture example. Once the checker map has been applied, it is time to assign the UVW Mapping modifier (**Fig.03**).

We will assign a planar map that, as the name suggests, uses a flat plane to project the texture. As a result you need to establish which polygons occupy a similar plane and then select these in sub-object mode. The red poly's on either side of the building support conform to these rules and so we can map the entire group together.

Fig.03

With these selected, click on UVW Map and select Planar. If you click on the small "+" next to the modifier, it gives you access to the Gizmo which will represent the boundaries of your texture template. In an orthographic view where the faces are adjacent (left in this case), click on the Bitmap Fit button and select your checker texture and then click on the View Align button (directly below) so that the plane is parallel to the selection of polygons. When we later unwrap the object, the polygons will appear on the template in areas that mirror the relative positions seen here between themselves and the gizmo. We need to follow the same procedure for the rest of the polygons that make up the object now.
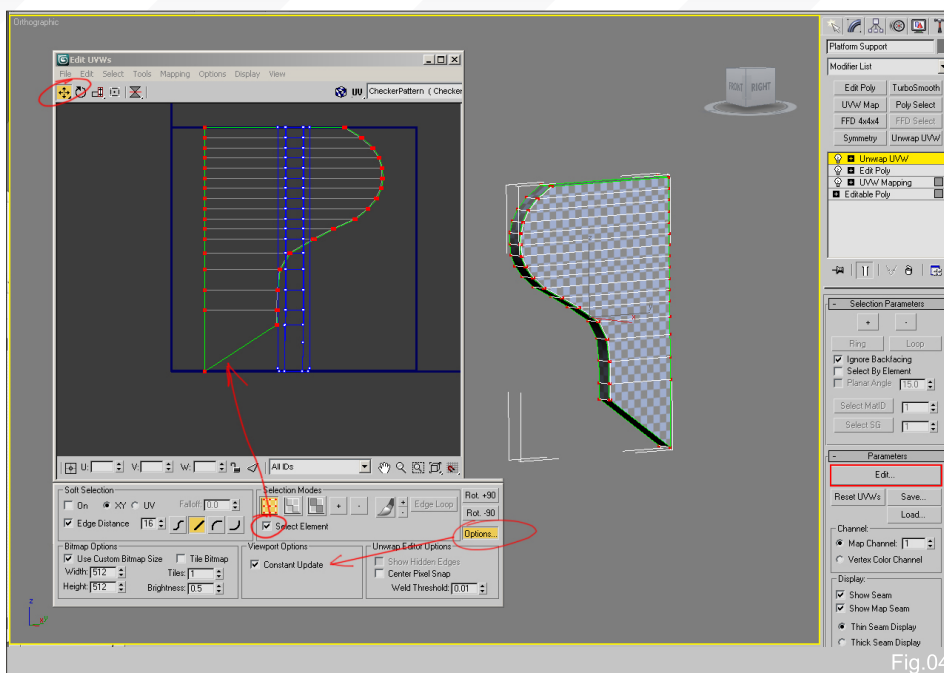
Once you have fully mapped the mesh you then need to assign the Unwrap UVW modifier, which will gain access to the mapping co-ordinates (**Fig.04**).

Select the large Edit button (outlined in red) which will bring up the Edit UVWs window. You will see the different selections of polygon groups that were mapped and which currently overlap one another. Check the Select Element box in the Select Modes panel and move them away from one another. Then use the Transform tools in the upper tool bar to arrange each section within the template (blue box). If you check the Constant Update box under Options, you can see which parts of your mesh are being affected when you move the UV's around. At the moment the two sides occupy the same position as they were mapped together, but you can separate them here if you wish.

Fig.04
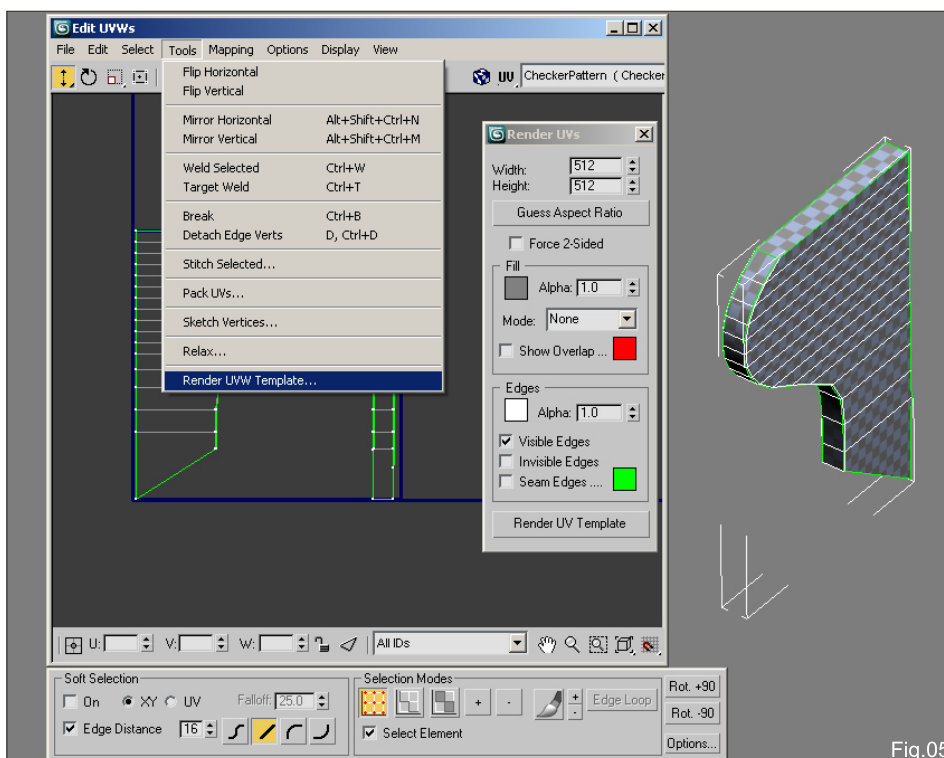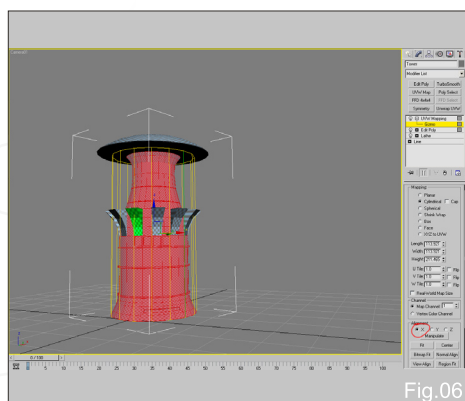
Fig.05

Fig.06

When you have completed this you can then export this template to be used as a guide in your texturing. Select Tools – Render UVW Template, which will open the dialogue box in **Fig.05**. Input the size you wish your texture to be at the top (512x512 in this case) and if you want all the lines to be white, un-check Seam Edges. Click on Render UV Template where you can now save the file in readiness for the texturing phase. This method of unwrapping geometry is the same no matter what mapping method you choose, but objects such as the main tower will require a different approach.

The Tower

The tower is essentially a cylinder in shape and hence will incorporate this type of mapping, but there are sections to it that will cause problems such as the balcony struts and canopy. The way to tackle the object is by selecting just the

polygons that form part of the main cylindrical body shape (**Fig.06**) before applying the cylindrical mapping.

Be sure to select the correct axis of Alignment (X in this case). You will notice in the modifier stack that the build history of the object still remains and shows the order of things.

The canopy can be planar mapped in the same manner as the building support alongside a single balcony support (shown in green). The canopy will be mapped from above or below and the highlighted support in two sections, i.e. the front and sides. If at any point the polygons are not parallel with an orthographic view, simply use the Transform – Rotate tool on the main toolbar to align the Gizmo as closely as possible.

When the balcony support is mapped, detach the remaining supports from the main tower and delete them, leaving just the mapped one. Detach this and then align its pivot with the centre of the tower. Now duplicate it by rotating it 30 degrees and choosing 11 as the number of copies. With this done you can now go ahead and attach them together. You will now have two meshes; the main tower and the balcony supports but you have only needed to map one of the 12 (**Fig.07**). Follow the same procedure
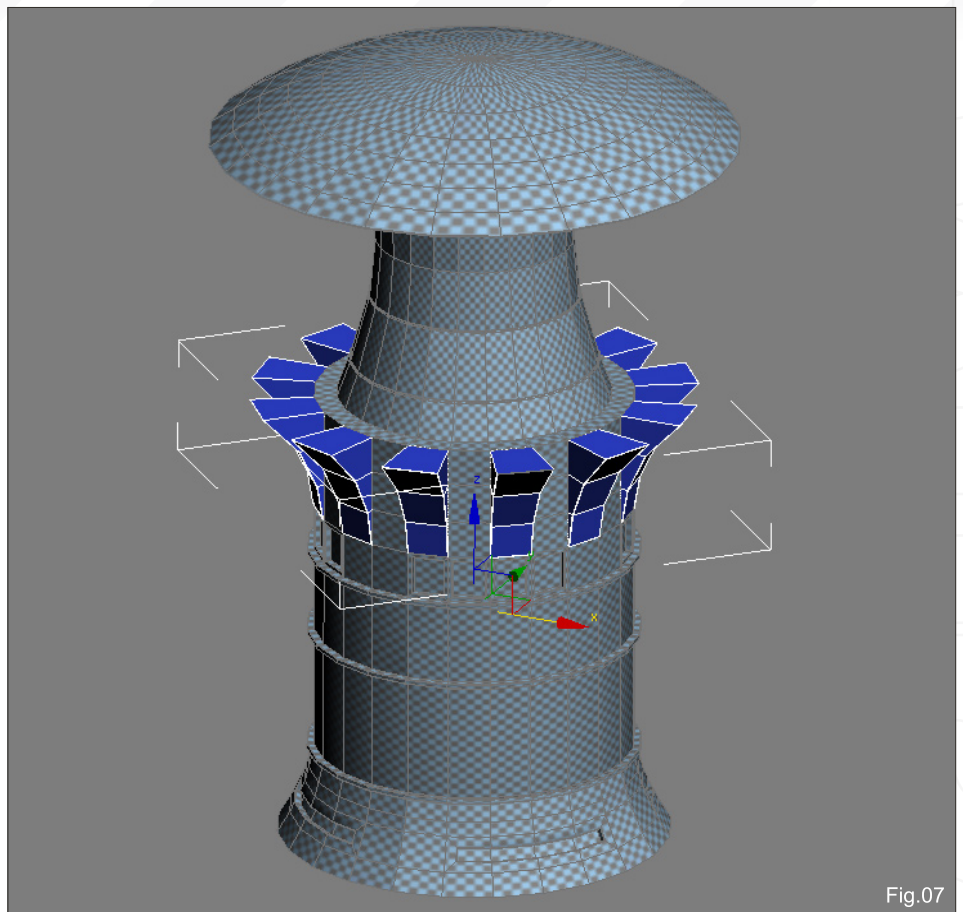
Fig.07

for the canopy supports and when everything is mapped, delete all but one quarter as done in the modelling tutorial.

Go ahead and unwrap this quarter piece and afterwards duplicate it three times to complete the tower.

You will now be left with a completely mapped / unwrapped tower, but one that only takes up a quarter of the space of a fully mapped version (**Fig.08**). You can see the green seam lines and how the mesh is divided into four equal parts, especially on the canopy, and how the supports all share the same (red) area on the template. Notice I have not unwrapped the top face as this will be covered by the balcony. This is very useful when you have restricted texture space but the downside is that details will be repeated around the object destroying a natural look. However, as this scene will culminate in a single render and one that reveals no more than half the tower we can get away with this economical method and use a Composite map to compensate (**see Part 2 - Issue 37 Sep08**).

THE WALKWAY

With a piece such as the tower walkway, it is clear that it is made up of seven identical units (**Fig.09**). As with the tower, this entire piece of geometry can be mapped via a single section highlighted in red. Once this has been done it
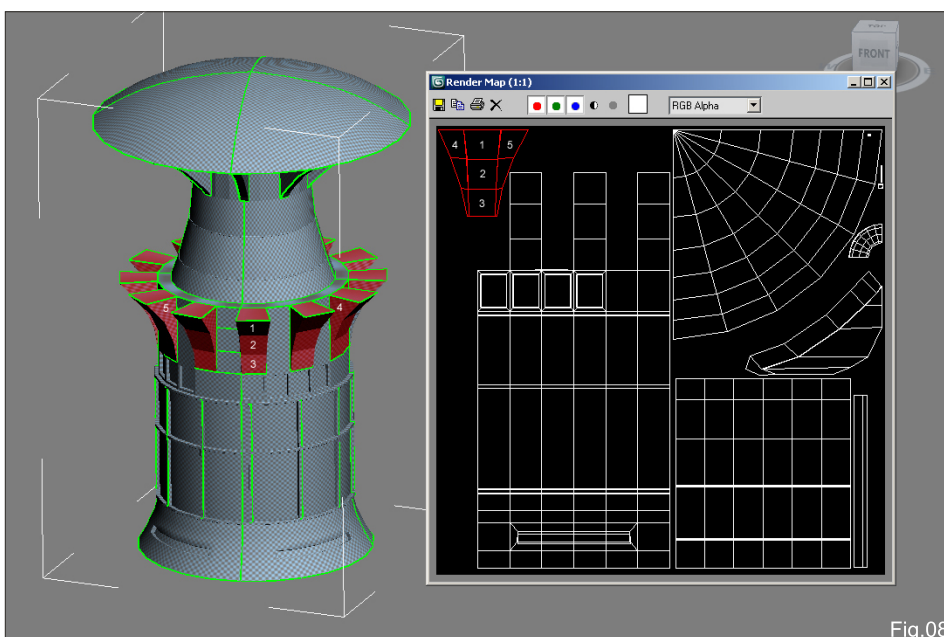
Fig.08

can be duplicated to make up the full length version. Each piece can then be moved within the template to different positions or alternatively can occupy the same position to save texture space, as with the tower. Of course, this will mean that the texture will be identical on each piece. The way to decide which avenue to take will be dictated by how you wish the scene to be viewed; will the camera be close to the object and will there be any camera movement etc?

In this case, I wanted a single render and already knew the lighting set up and where the camera would be, so looking at the eventual position in the scene (**Fig.10**) I could decide on the best solution. The most visible area will be the facing side of the canopy, but we will only see five of the seven sections. The top of the floor will be hidden and the lower side will be in shadow so will not really require a detailed texture. I could in fact have five parts of the canopy separately unwrapped but decided on the most economical approach by overlapping all sections using the same co-ordinates. Again, a Composite Overlay will be used to break up the symmetry and will provide the necessary detail (**see Part 2 - Issue 37 Sep08**).

In **Fig.10** you can see the unwrapped object in red, where both sides of the top canopy occupy the same position (the far side is out of view and so can be identical). The floor

Fig.09

Most Visible

Away from camera

Invisible

Fig.10

Fish
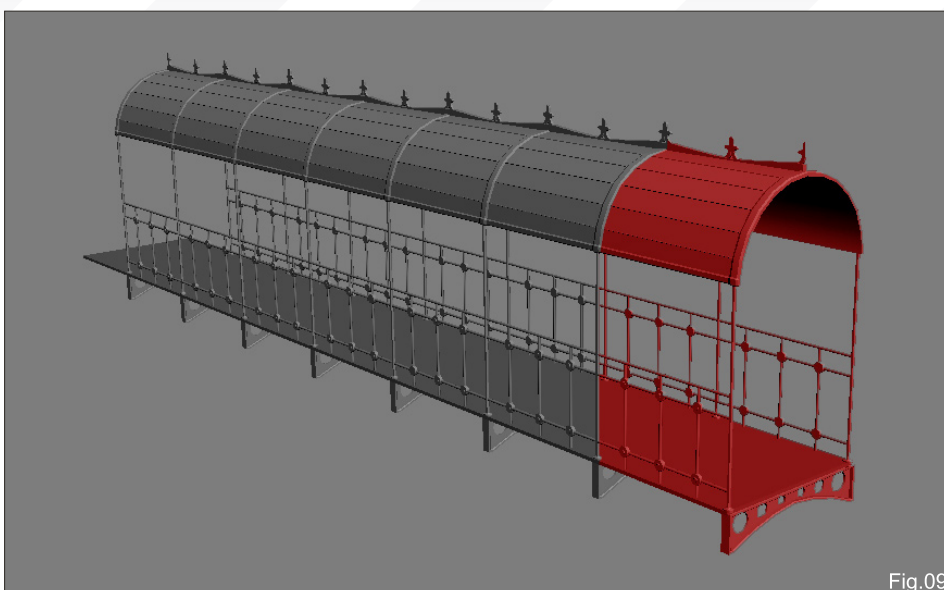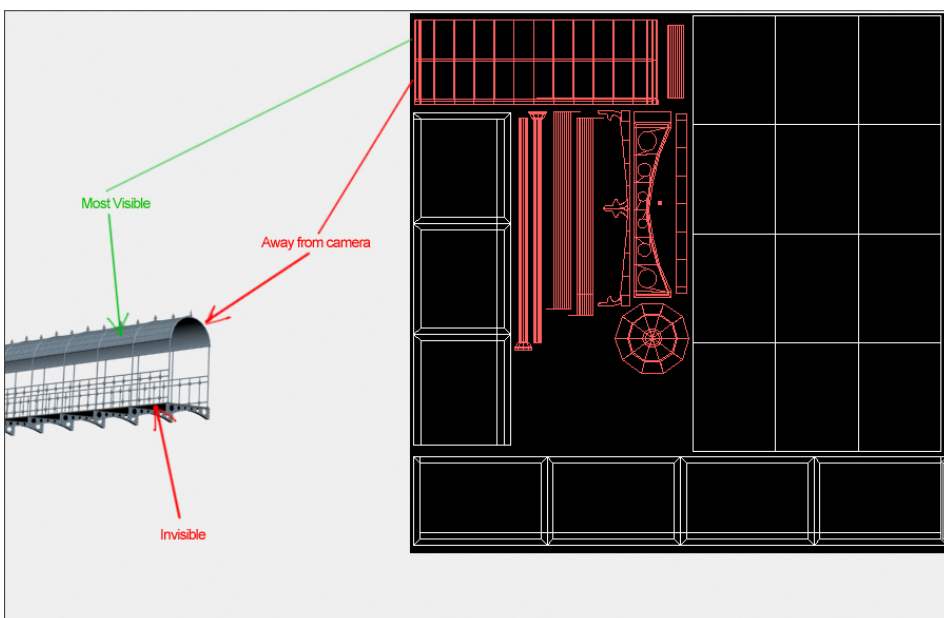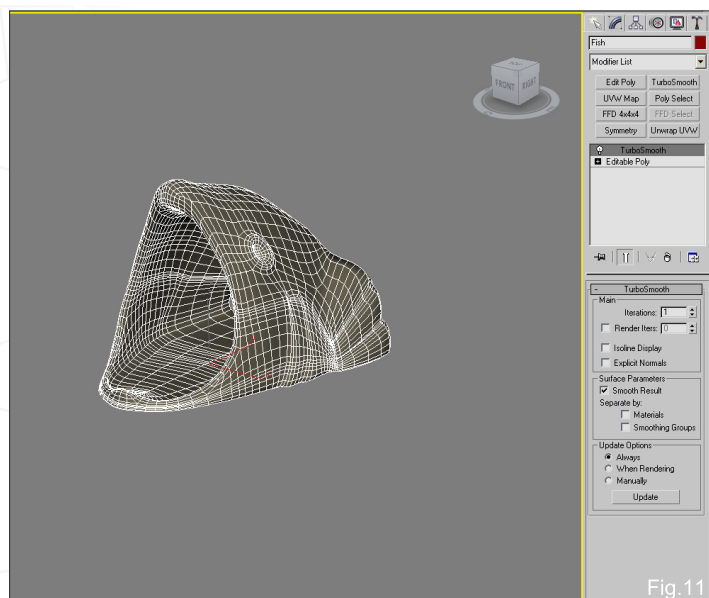
Fig.11

has not been unwrapped and will utilise a small, separate, tileable map instead. The other sections refer to the railings and floor supports and also share the same texture space due to their small scale in the scene. The actual mapping technique uses planar projection for everything except the railings, which use cylindrical mapping. It is just a case of selecting the areas of poly's in the appropriate groupings. Remember that you only need map and unwrap the section in red in **Fig.09** and once done, duplicate the pieces and they will retain their respective UV's.

The Fish

This is the most complicated shape in the scene and perhaps the biggest challenge with regard to mapping. In **Fig.11** you can see that the mesh has a TurboSmooth applied and this is how it will eventually appear in the

scene. However this is a large number of poly's to deal with and would be complex to unwrap. Luckily we can map the lower poly version and then apply smoothing without upsetting the UV co-ordinates.

First of all, delete one half of the mesh as it is symmetrical and will reduce the amount of polygons we need to map. Select the outside poly's on the side of the head and in the left or right view project a planar map using the View Align function on the Gizmo we have mentioned (**Fig.12**). Now in the front view, rotate the Gizmo so that it is more parallel to the general group of poly's (lower left view). The poly's at the extreme top and bottom will show some stretching, but this can be rectified when they are unwrapped later on.

There is no need to map the underneath and back of the model as they will be concealed.
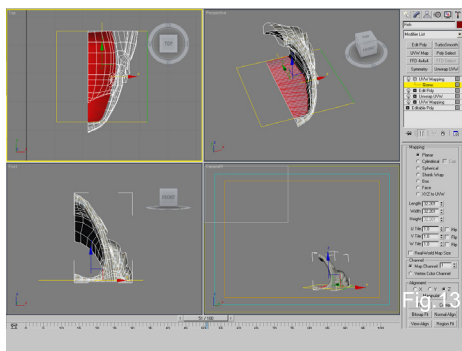
Fig.12
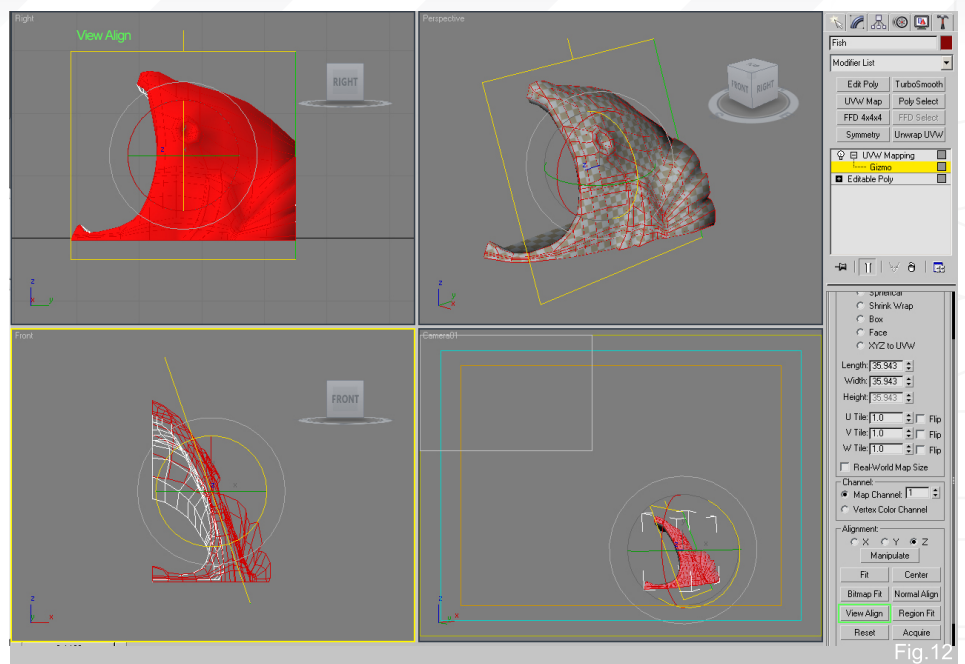
Fig.13

The inner part can be mapped in two sections: the base can be planar mapped from above (**Fig.13**) and the side can be mapped in the same way as the exterior.

When all three sections are mapped they can be unwrapped and then the Turbosmooth can be applied. In **Fig.14** you can see that Turbosmooth has been applied after Unwrap UVW in the Modifier Stack. This means you have a higher poly mesh but only needed to unwrap a portion of the geometry with the co-ordinates remaining intact. The small cluster

of verts in the bottom left corner represent the unmapped poly's on the underside and back faces. The seam that forms the lip of the mouth will need to be moved in the direction of the red arrows to alleviate the distortion from the planar map, as these poly's were not parallel to the Gizmo (**see Fig.12**). The verts that make up the bottom lip (highlighted in yellow) will also need to be moved to the left in the Unwrap window, as these faces were also curving away from the planar map and hence squashed.

In **Part 5** we will cover the importance of texture resolution and the value of bump, specular and normal maps. We will discuss how to add weathering and dirt to age a texture and show how Composite maps add detail and help disguise tiling issues.
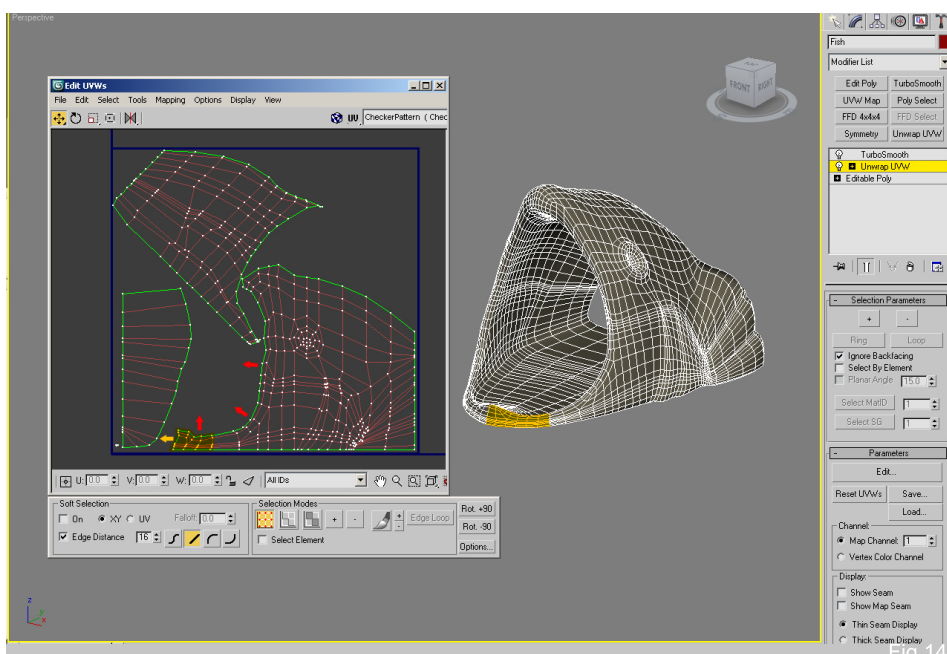
Aged & Weathered Environment
Creating a Complete Scene from Concept to Render
Part 4: Mapping

Richard Tilbury

For more from this artist visit:

http://www.richardtilburyart.com

Or contact them:

rich@3dtotal.com

Fig.14

Creating a Complete Scene From Concept to Render

CINEMA 4D

This series will run over the next six months and will endeavour to give you an insight into how a fully realised 3D scene may be arrived at from beginning to end. The tutorials will attempt to address the key issues and techniques appropriate in achieving this, from concept sketches through to building the 3D scene, mapping and unwrapping, texturing and eventually to lighting and rendering, culminating in a final render. The emphasis over the course of the series will be on the texturing, which will be covered in two of the six instalments, and principally the aging and wear of materials.

The schedule is as follows:

Issue 037 September 2008
Part 1: Importance of Reference

The series will begin with a look at the gathering and importance of reference material, and then transposing these into some concept sketches and a concept / production painting.

Issue 037 September 2008
Part 2: Modelling Overview

This chapter will go on to deal with a general modelling overview, which will be non-software specific, and then follow with a look at Photoshop and some general preparation of textures.

Issue 038 October 2008
Part 3: Preparing the Textures

This chapter will focus on Photoshop and more specifically, the job of preparing textures, including painting out seams and making images tileable.

Issue 039 November 2008
Part 4: Mapping

This chapter will focus on the mapping and unwrapping of your scene

Issue 040 December 2008
Part 5: Texturing Principles

This chapter will focus on texturing principles and will cover texture resolution, bump specular and normal maps along with combining textures. It will also cover using masks and adding dirt and grime

Issue 041 January 2009
Part 6: Lighting & Rendering

The final chapter will discuss lighting and rendering techniques and show how a simple lighting rig can be set up, along with different render passes ready for a final composite in Photoshop.

AGED & WEATHERED ENVIRONMENT
CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

Welcome to the fourth instalment in the series, which will provide a look at Mapping and an overview of the principal techniques of the Texture Mapping. Before starting the texturing of our scene, I will explain some basic concepts about texture, mapping and projections. What is a texture? A "texture" is a bitmap image used to cover the surface of an object. "Texturing" is the process of applying this image to the object, while the "projection" is the way the texture is being applied to the object. There are various ways to place a texture on an object. These techniques are called "Projections" and they are divided into: Spherical; Cylindrical; Flat; Cubic; Frontal; Spatial; UVW Mapping; Shrink Wrapping; Camera Mapping. We will see in detail some of these projections, in particular only those necessary to our scene, but feel free to explore the other types by yourself.

FLAT MAPPING

Let's start with the flat mapping. It projects the texture onto the object in a planar direction, so it's clear that it can only be used for flat objects and will be good for ground of our scene. In **Fig.01** (from the left to the right) you can see some examples of flat projection applied to a plane object, to a cylinder and to a sphere.
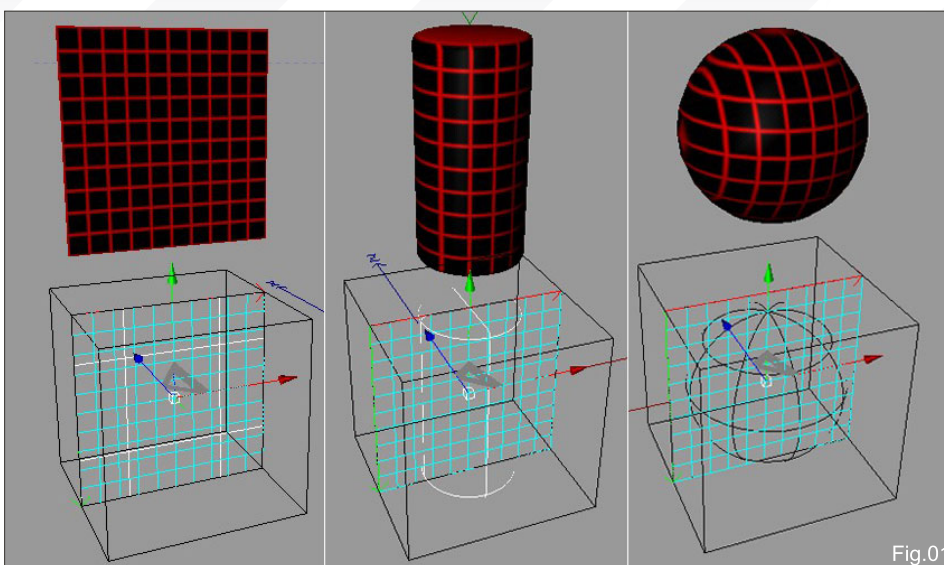
Fig.01
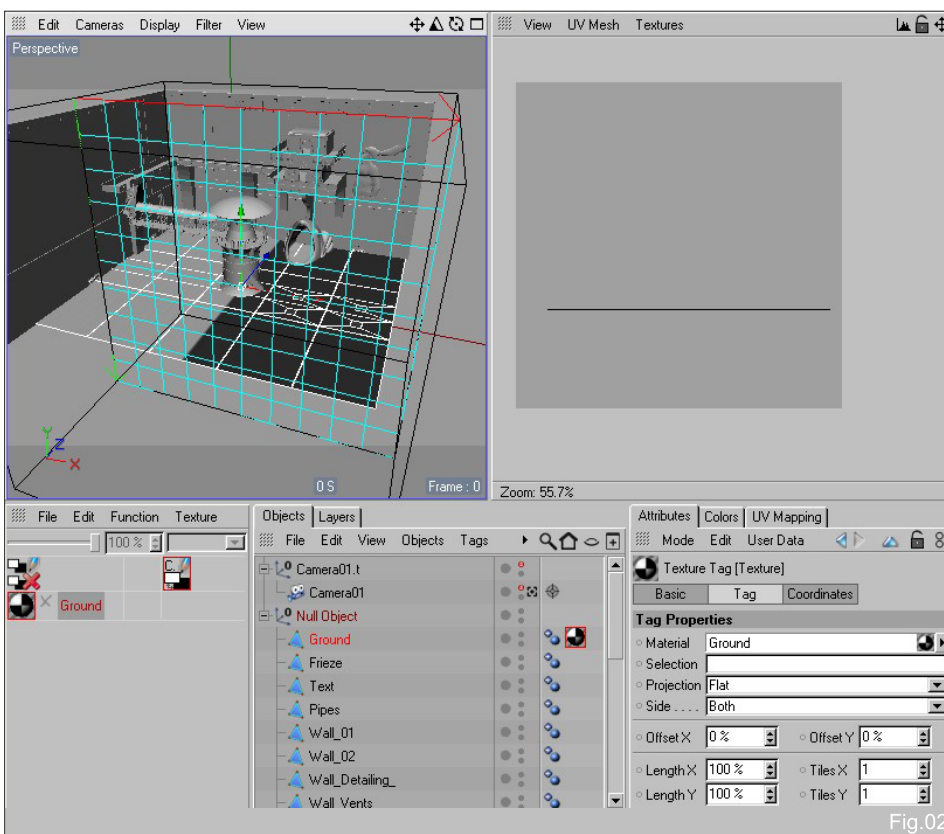
Fig.02
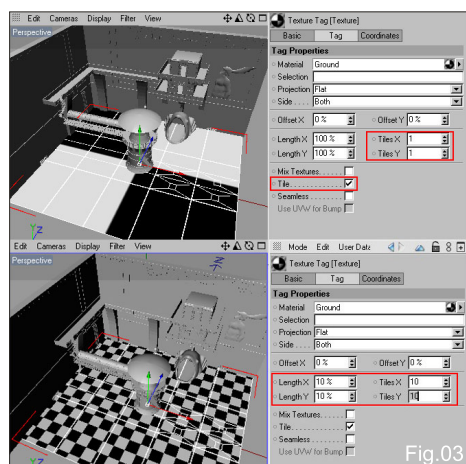
Fig.03

As you can see in **Fig.01**, the texture is soon distorted when applied to a cylinder or a sphere. Now let's apply the flat projection to an object in our aquarium scene. As mentioned above, the floor can be considered a flat plane, although it has some inner extrusions and indentations. So, create a new material. In the Color Channel, load the "Checkerboard" surface and then apply the material to the "Ground" object. In order to keep it all clean, it would be appropriate to rename the materials on the basis of the objects that they will be applied to. We will use the checkerboard surface as a guide; it will be useful to check the integrity of our mapping coordinates and it will give us the chance to successfully unwrap our mesh. The squares of the checkerboard will easily show any stretching and badly mapped polygons. Now go into the Tag properties by clicking the Texture Tag into Object Manager. Here replace the default spherical projection with the flat projection, as shown in **Fig.02**.

Use the "Texture Axis Tool" to position the texture onto the object - in this case we need to rotate it by 90 degrees on the X axis. In the Texture view you can see the UV Mesh. As you may notice, the texture seems to be too large compared to the object - we see only four square of our texture guide. It is therefore necessary to increase the repetition of the texture on the surface of the object. This process is called "Tiling". The values of the tile are the number of times the texture is being repeated onto the X length and Y length. You can change the length either in terms of tiles or as a percentage of the texture envelope (**Fig.03**).

Cubic mapping

The cubic mapping projects the texture onto all six sides of a texture cube, as seen in **Fig.04**.

We can apply the cubic projection onto the walls of our scene. Select a wall and assign a new material to it, which has the checkerboard surface in the colour channel. Choose the cubic projection, as seen at the top of **Fig.05**.

Increase the tiles to the bottom of figure and use the Texture Axis tool to position the texture.
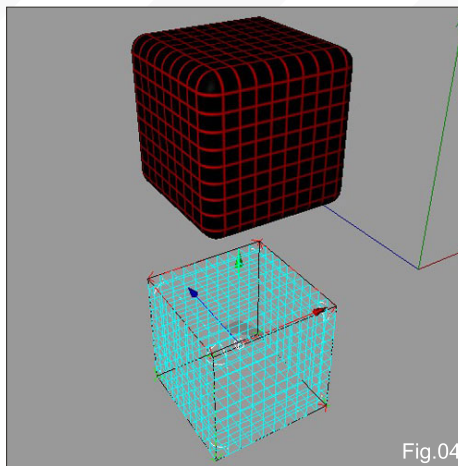
Fig.04
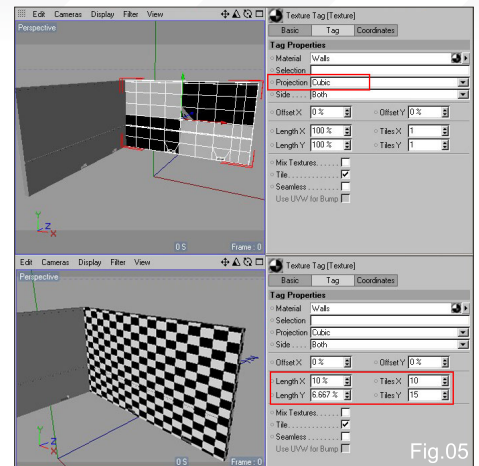
Fig.05
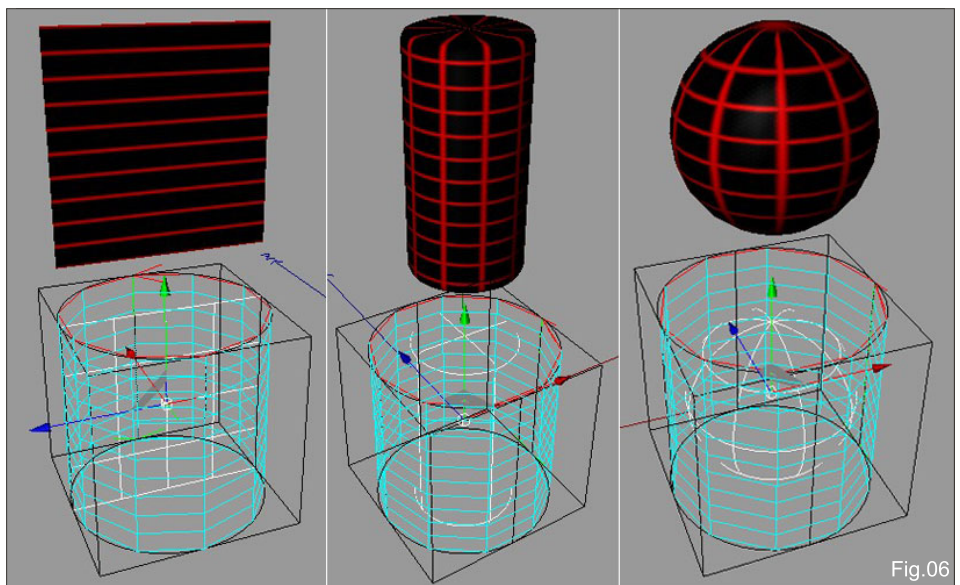
Fig.06
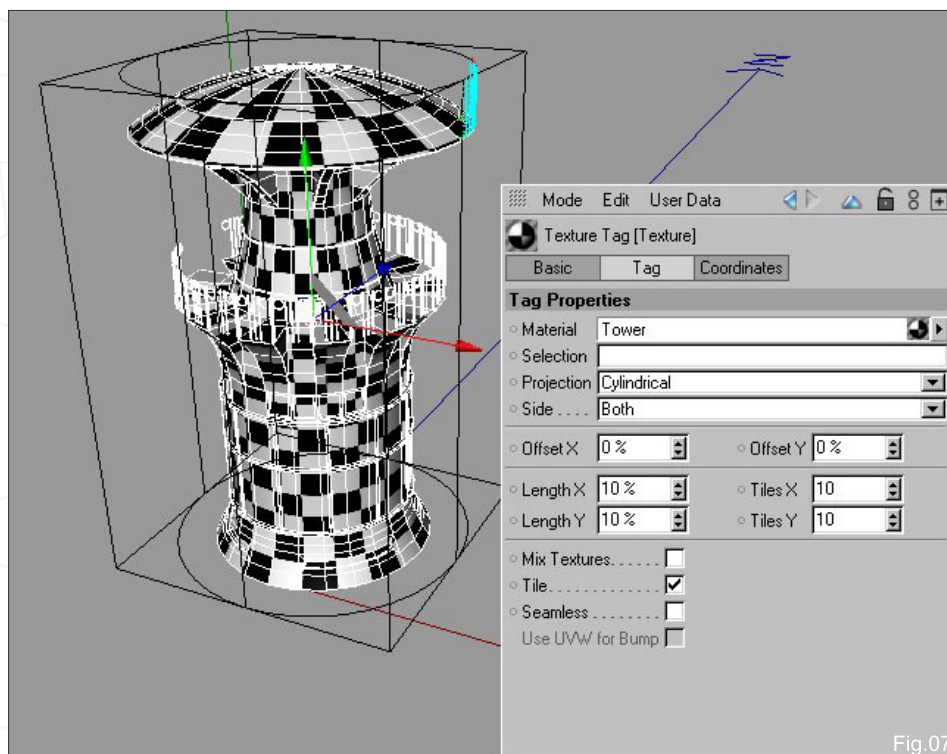
Fig.07

Now duplicate the wall that we just mapped and place it in the scene. This will allow us to save time and space in the texture; otherwise, repeat the previous procedure.

Cylindrical mapping

Cylindrical mapping projects the texture onto the object in a cylindrical form - this projection is rarely suitable for a flat object. When it's applied to a cylinder, notice how the texture suffers a distortion on the caps - you should apply separate textures to the caps.

Fig.06 – From left to right: cylindrical projection applied to a plane; cylindrical projection applied to a cylinder; cylindrical projection applied to a sphere.

Let's make a practical example with a real object in the aquarium scene. Create a new

material, then apply it to the tower object. Choose cylindrical projection, then increase the tiles as shown in **Fig.07**.

As you can see from **Fig.07**, the upper side of tower suffers a distortion. Even other elements of the tower are subject to distortions. Therefore, we should apply separate textures to those elements which cannot be mapped with the cylindrical projection. To assign sub-projections, we need to save the selection's polygon, which will be mapped with a different projection. This will also allow us to assign different materials to the object. So, identify which elements must have different projections and different materials: the roof could be mapped with the spherical projection; the supports of the roof and the supports of balcony may use the cubic projection; we can use a different material for the base of the tower. Using the Polygon tool, select the roof of the tower, then save the selection and name it "roof". A new tag will appear in the object manager (Polygon Selection Tag). If you click once on this tag, you will go to it's properties; if you click twice then you will recall the selection of polygons. Save the selection of the other elements that I mentioned above. The following images show you the process that I just explained (**Fig.08** - **Fig.11).**

Fig.08

Fig.09

Fig.10

Fig.11
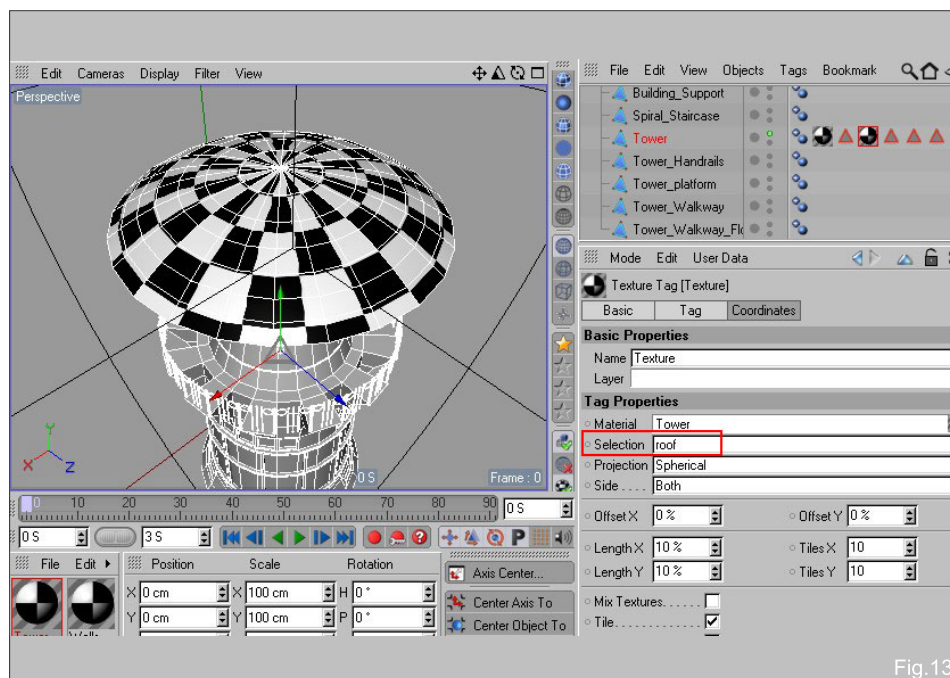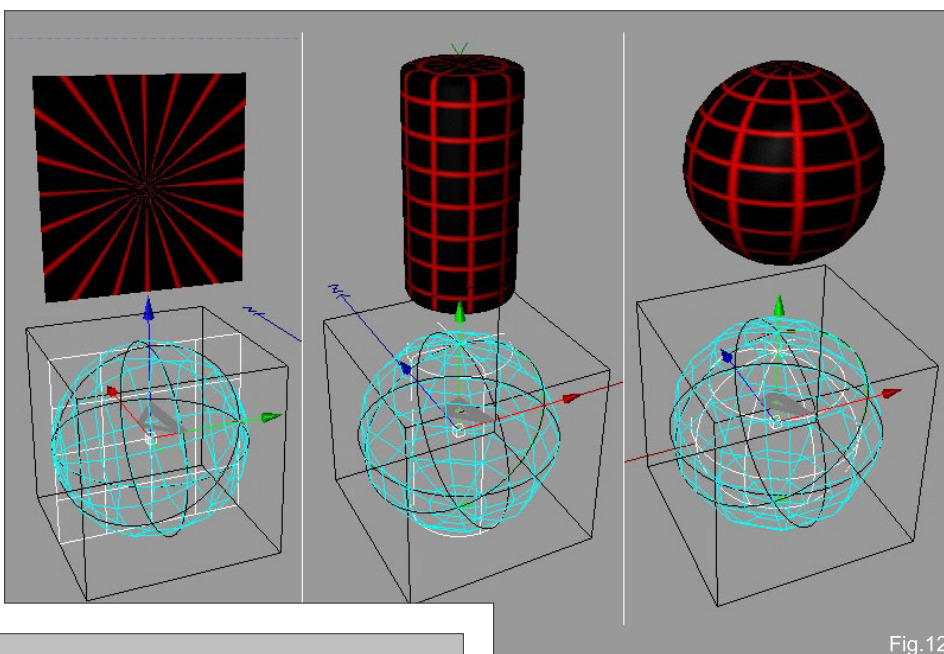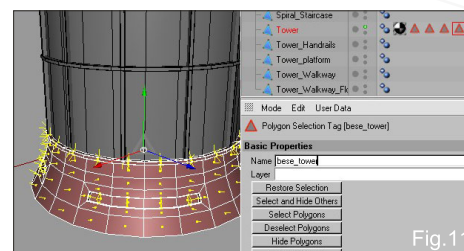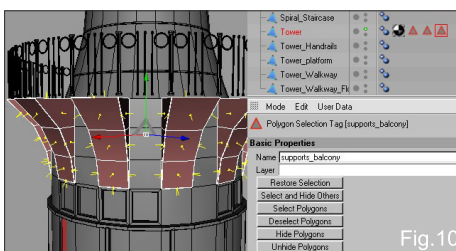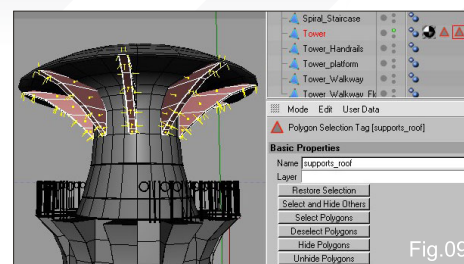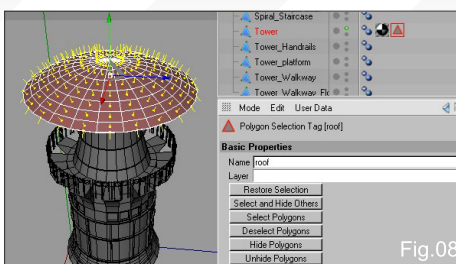
Fig.12

SPHERICAL MAPPING

Spherical mapping projects the texture onto the object in a spherical shape; again, this projection is rarely suitable for flat objects.

Fig.12 – From left to right: spherical projection applied to a plane; spherical projection applied to a cylinder; spherical projection applied to a sphere.

We want to apply the spherical projection to the roof of the tower, so drag and drop the tower material onto the tower object, then go to the Tag Properties and specify the selection on which this projection should be applied. Increase the Tiles as shown in **Fig.13**.

Fig.13

Now you can carry on using this method for the other elements of the tower, and you can also create new materials for those parts.

UVW MAPPING

UVW Mapping is a three dimensional texture and as such it requires three coordinates: one for the horizontal position "U", one for the vertical position "V" and one for the depth position "W". "UVW" is basically XYZ for texture coordinates. Each point on a UVW map corresponds to a point on the surface of the object. Imagine a grid divided into a U direction and a V direction, as shown to the left of **Fig.14**.

The UV range starts at 0,0 and ends at 1,1. For an upright polygon, 0,0 describes the top left; 0,1 the bottom left; 1,0 the top right and 1,1 the bottom right. A texture is stretched across these four coordinates (**Fig.14**).
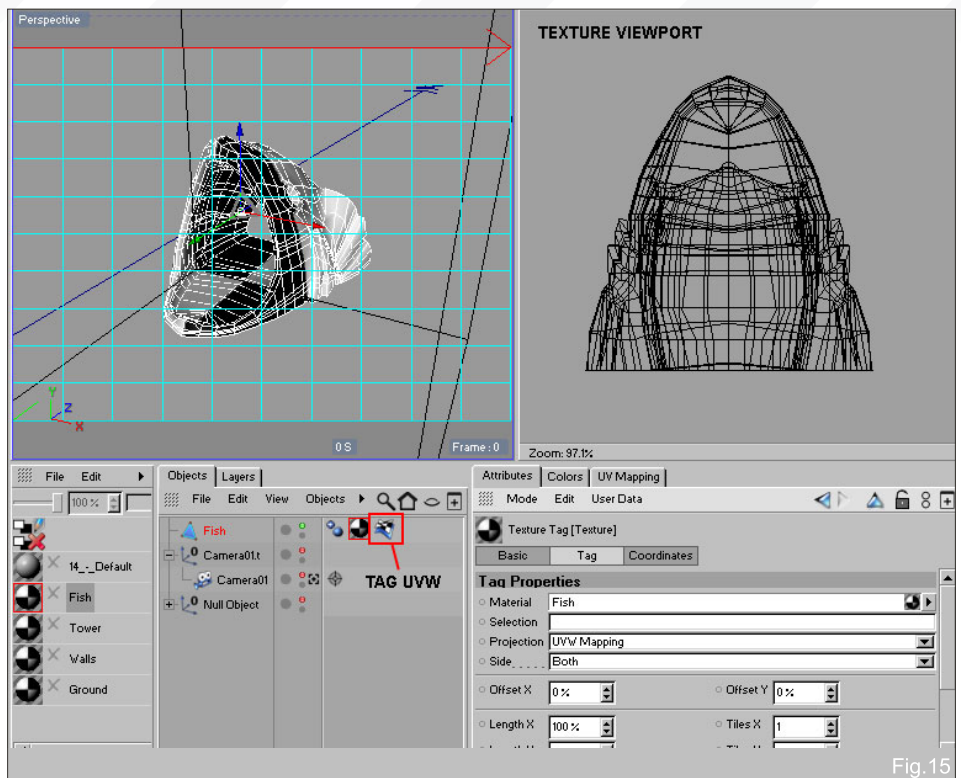
Fig.15
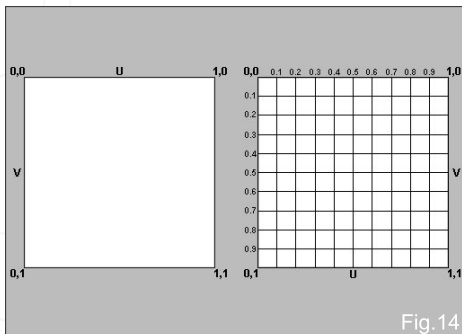
Fig.14
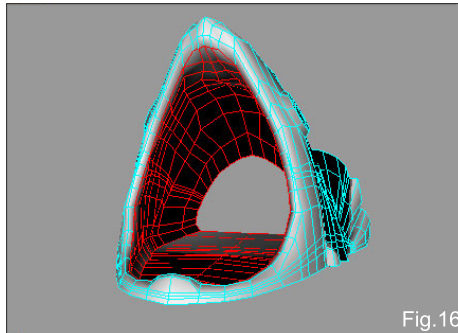
Fig.16
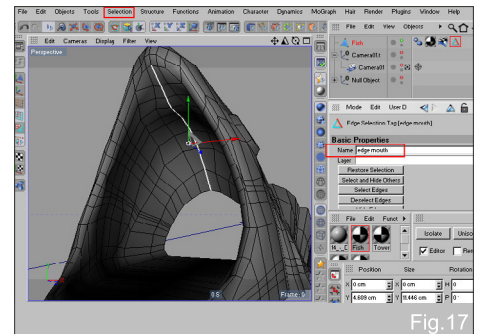
Fig.17
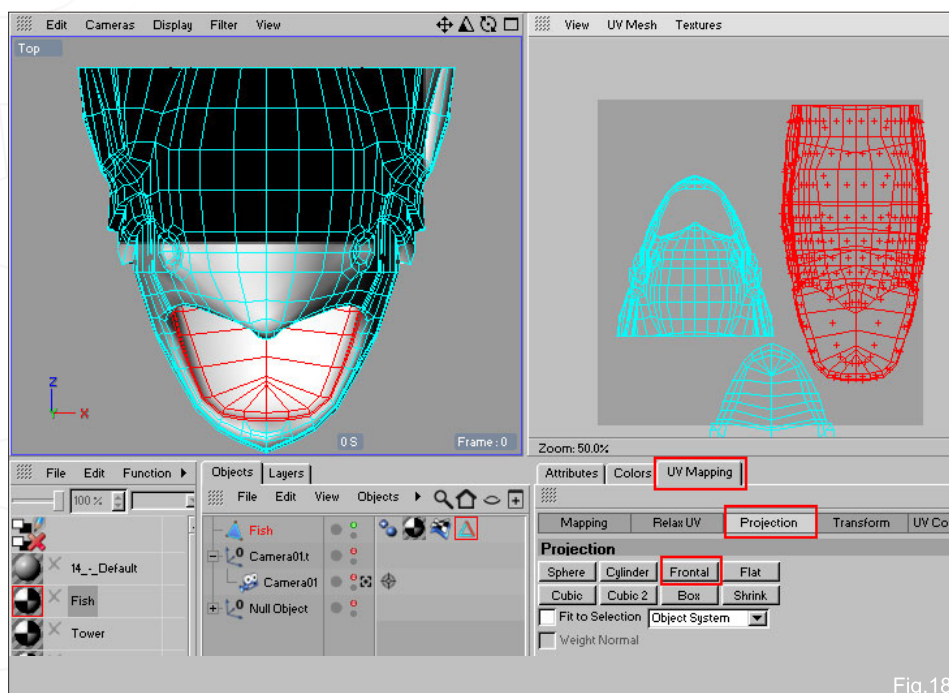
Fig.18

Let's make a practical example with an object of the our scene. That means we have to use the Texture Editor of C4D, BodyPaint 3D. Create a new material which has the checkerboard surface in the colour channel and assign it to the fish object. Apply the desired projection type, such as flat, then generate the UVW coordinates (select the Texture Tag > right mouse menu > Generate UVW Coordinates). When you generate the UVW coordinates, a new tag will appear in the Object Manager (**Fig.15**).

The UV mesh should now be displayed in the Texture Viewport (to the top right of figure). Now the faces of the object are overlapped because the texture was projected as flat, but we can modify the UV mesh by applying various projections on various parts of the object.

Select the polygons, as shown in **Fig.16**. Select the edges, as shown in **Fig.17,** by using the Edge tool. Save the selection (Selection > Set Selection). You will notice that a new tag has appeared in the object manager. Now go into the UV Editor, select the top viewport window, then go into the UV Mapping tab and select "Frontal Projection" from the menu. The texture will be projected from the camera position onto the object (**Fig.18**).

Still in the UV Mapping tab, select the Relax UV parameter. Here make sure that the "Pin To Neighbors" is enabled, then choose the desired algorithm. We have two types of algorithm: LSCM and ABF. Check the "Cut Selected Edges". Type the name of the saved selection into the box: "Use Tag", as shown in **Fig.19**, and thus the texture will be easily unwrapped.

Still working on the fish, select the polygons at the bottom of the fish, as shown in **Fig.20**. Now select the bottom view window and apply the frontal projection, as we did above (**Fig.21**).

Proceed in the same way for the remaining parts of the fish object. The UVW should appear, as seen in **Fig.22**. Now keep on working on the texturing and complete the whole scene.

Now you can replace the checkerboard with the texture that we will make later, thus creating a
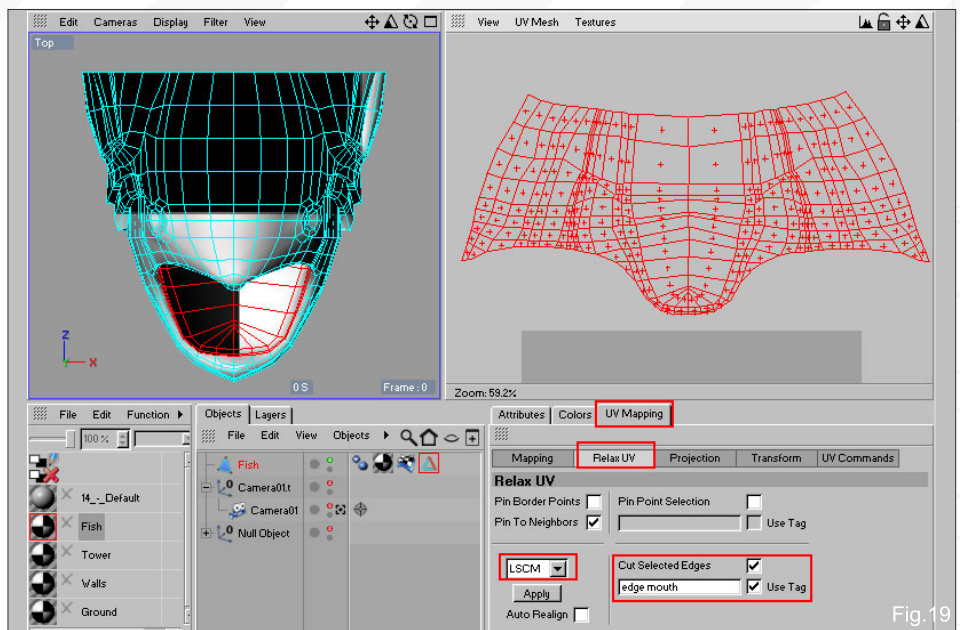
Fig.19
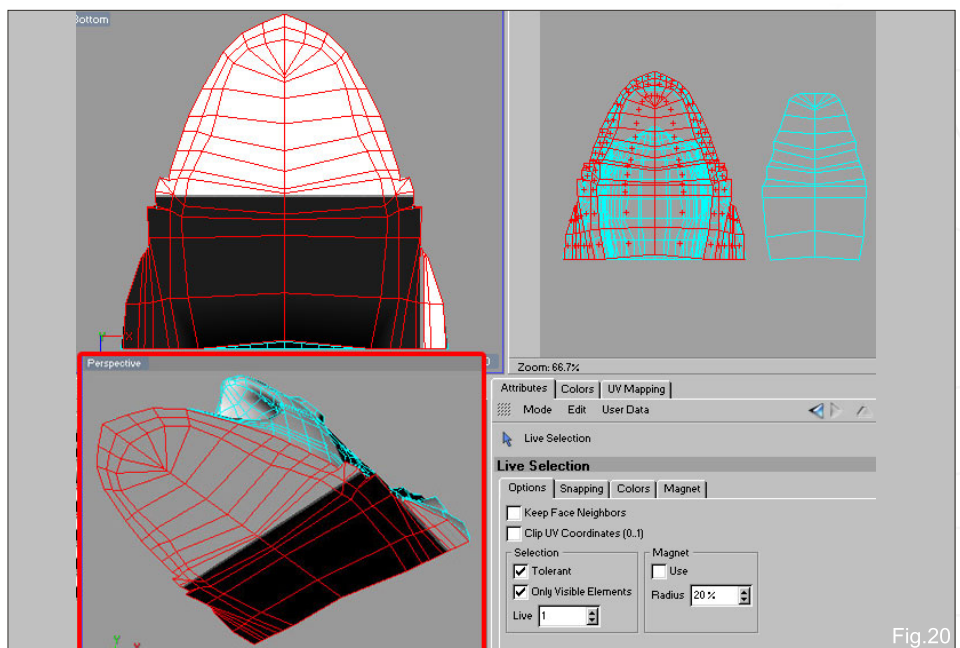
Fig.20
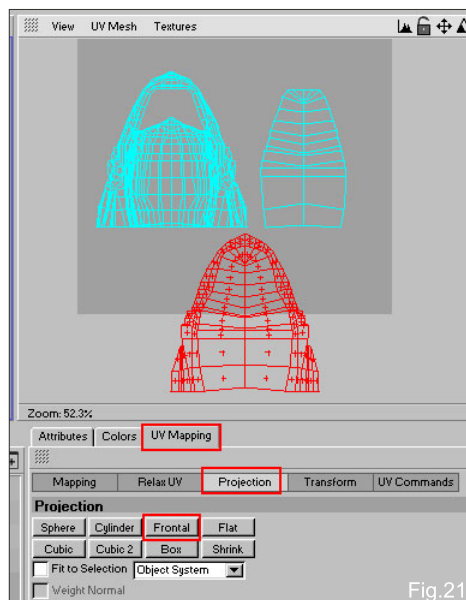
Fig.21
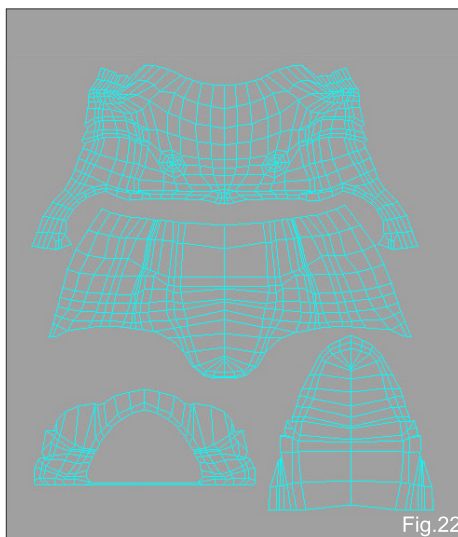
Fig.22

new texture. You may create the new texture from Photoshop or from C4D. If you want to create the texture from C4D, open the Material Editor and go in the Texture menu. Here click on "Create New Texture" to go to the properties of the texture, as shown in **Fig.23**.

Choose a name for the new texture and choose the resolution; in this case a size of 1024x1024 pxl should work fine. A new Photoshop file will be created. Save the texture (**Fig.24)**.

You could save the texture in several file formats, such BMP, TIFF, JPG etc ... but the

PSD format allows us to keep all layers and also some effects of Photoshop. This is very useful, as we will find out later. Now go into Layer Manager and add a new layer as shown in **Fig.25.**

Go into Colors Settings and change the default colour, as seen on the left of **Fig26**. Then select the Brush tool and, in its attributes, change the size, pressure and hardness of the brush (**Fig.26**).
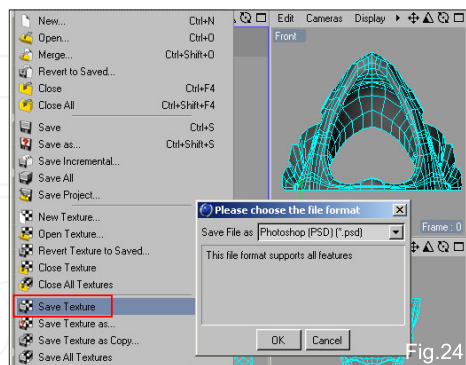
Fig.23

Fig.24
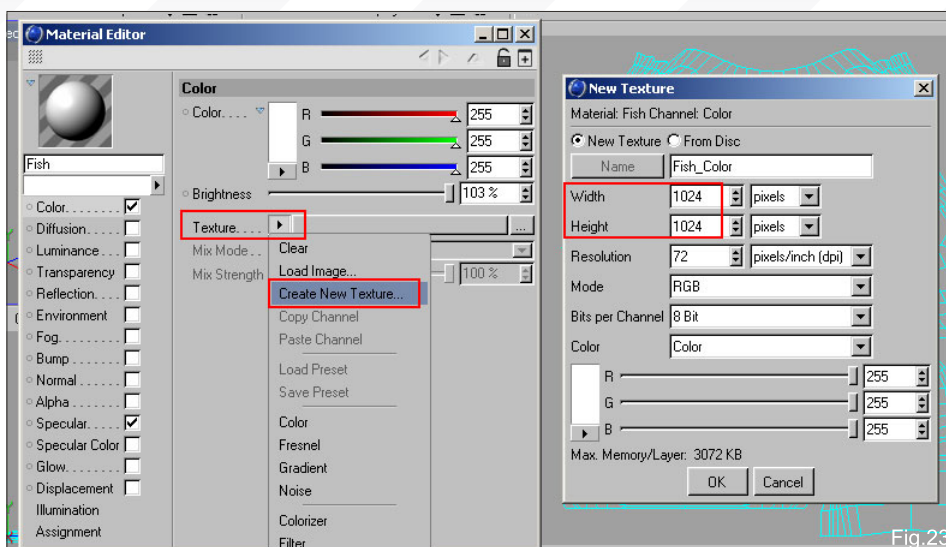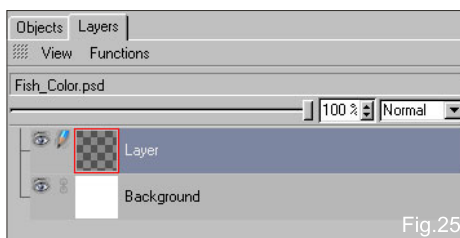
Fig.25

Select the whole UV mesh of the fish object, select the layer that we added before, then select "Outline Polygons" from the Layer menu, as seen in **Fig.27**. In this way we can use the UV mesh as a guide in order to draw our texture (**Fig.28**).
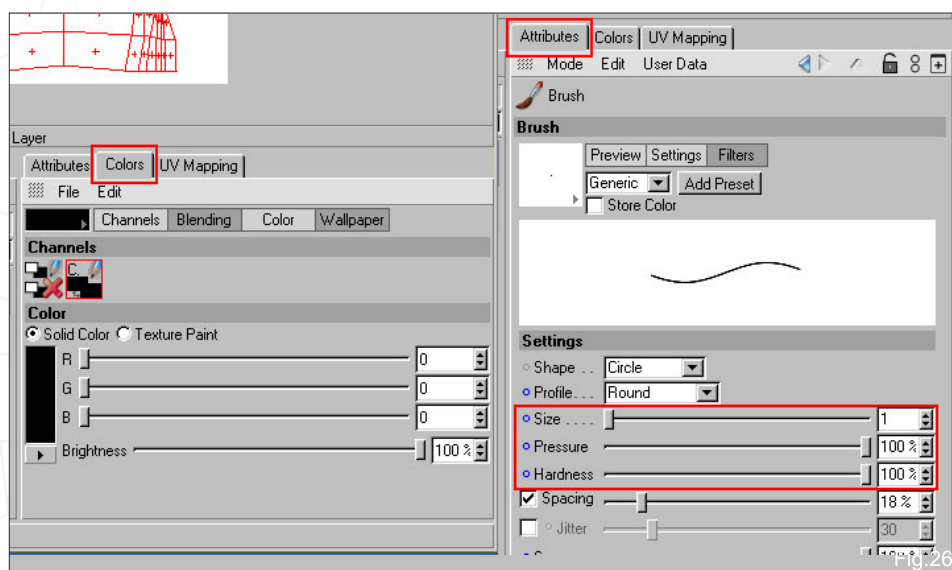
Once you've drawn the outline of the UV polygons, save the texture. Now open the texture in Photoshop and you will notice that the layer with UV mesh is very useful - you may turn it on and off depending on the necessity. You can work simultaneously with Photoshop and C4D thanks to the compatibility between the softwares. We will explore this in detail in the next part of the tutorial.
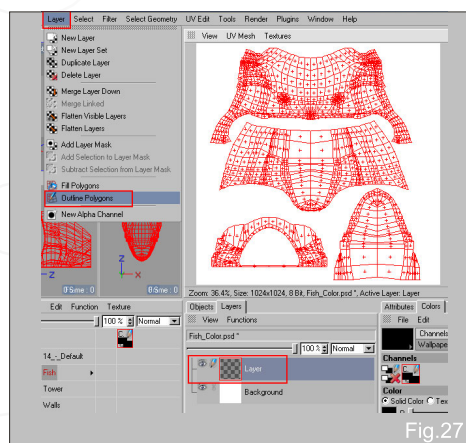
Fig.26
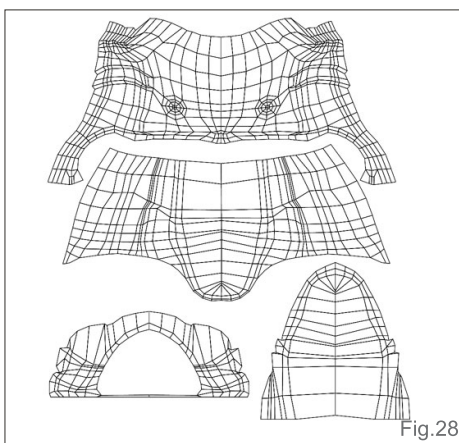
AGED & WEATHERED ENVIRONMENT
Creating a Complete Scene from Concept to Render
Part 4: Mapping

Niki Bartucci

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www.pikoandniki.com

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Fig.27

Fig.28

Creating a Complete Scene From Concept to Render

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AGED & WEATHERED ENVIRONMENT
CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

Welcome to Part 4 of this tutorial. In order to follow this tutorial, you should use the latest version of LightWave (9.5). If you're using an older version then you should still be able to follow, but some things might work a bit differently.

Let's take a look at our model. We only have one default material for the complete scene, which can be a typical scenario when working with imported objects. Of course, this can be rather uncomfortable to work with, so a good start would be to decide what material each part of the model is going to be made of (**Fig.01**).

Start by selecting the biggest connected elements and give them a material. Work in polygon selection mode. Select one polygon of an element, and click "Select Connected" from the Selection Main Menu. Then press "Q" or click "Change Surface" and name it accordingly. It makes sense to name all materials in the same way, for example "BalconyWalkwayWood01". This way you (and others working with your scene) can find the part you are working on more easily. Also try to choose a colour which best fits the material you intend to use (**Fig.02**).
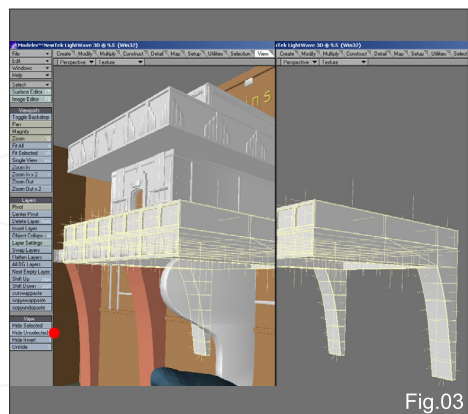
Fig.01

Fig.02

Fig.03
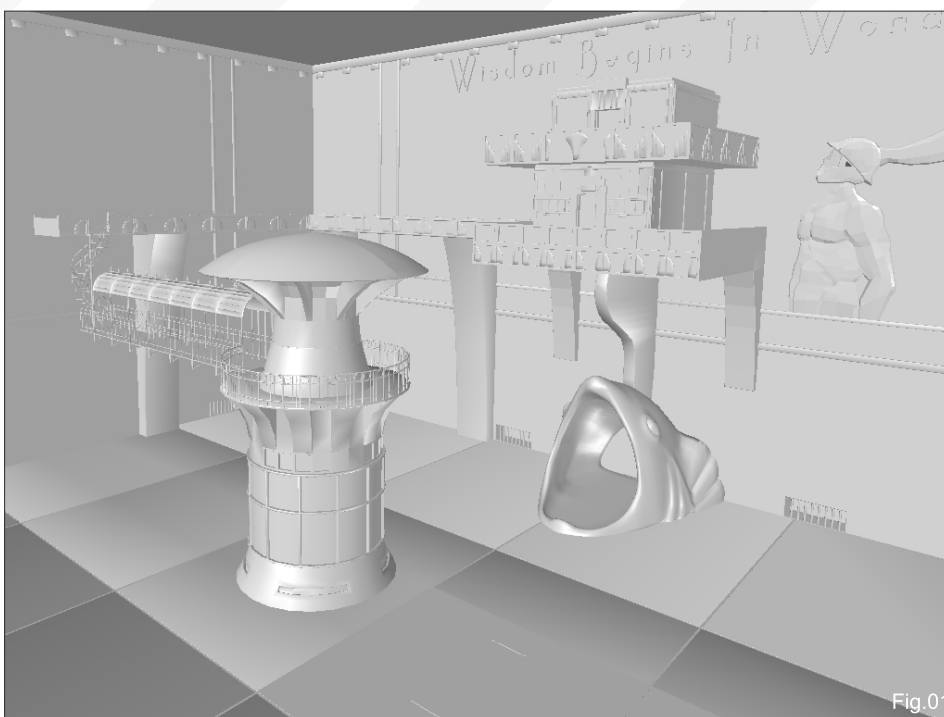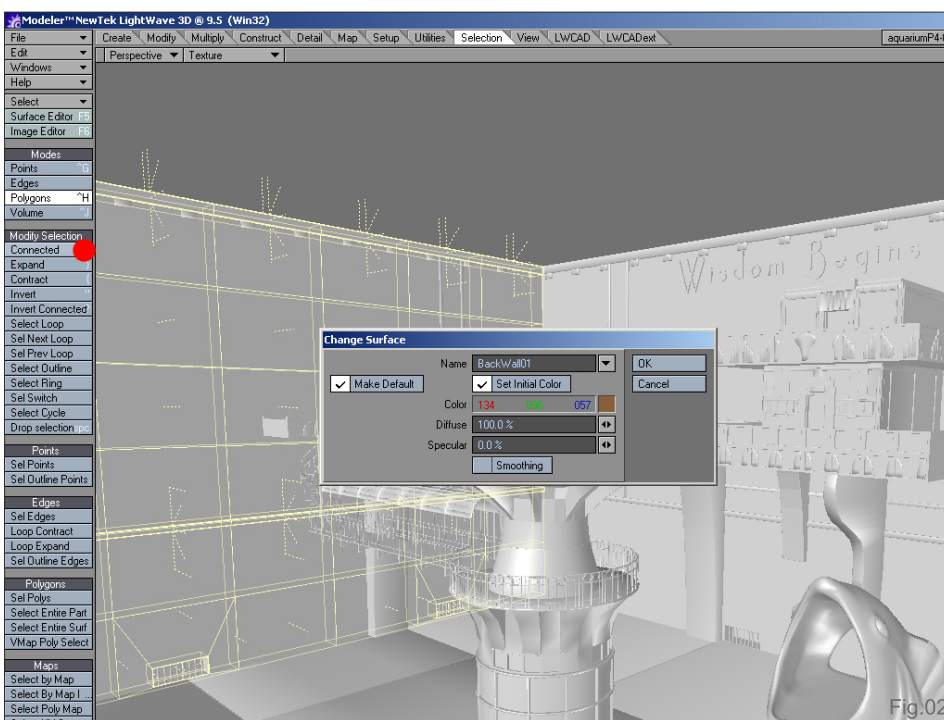
Tip: Make a keyboard shortcut for "Select Connected". When you like to work with various objects in one layer, this will save you a lot of time!

When you are done with all the connected parts, do it for the smaller parts. If you come across big detailed elements that you would like to give more than one material, select the complete object and click on "Hide Unselected". Now you can concentrate on this part of the object and give materials to smaller groups of polygons, if you like. When you are done, simply click "Unhide" to show all objects again. Keep your viewpoint in mind while you're working. The perspective view is great for most of the work, but for selection work like this you might check the side, top or front view for better visibility of the area of interest (**Fig.03**).

Tip: Make a shortcut for "Hide Unselected" and "Unhide", as these are also very useful!

Now that you are done with giving each part a material, it's time to start with the UV mapping. First let's do the walkway to the tower. Select polygons with the material you created for the walkway via "Polygon Statistics". Hide everything else – "Hide Unselected". In the lower right corner of your programme window, click "T" for texture mode. In the drop-down menu, choose "new" to bring up the "Create UV Texture Map" window. We'll leave the values all to default, as we'll create a planar mapping using the Y-axis. The map is named "Textures" (**Fig.04**).

When we now start to change and layout the UV map, you might want to get feedback on your changes. That is why we are going to add a checker map. Go to the "Surface Editor" and select the material you just created the UV Map for. Then choose the colour channel and add an image layer with a checker texture (you can find one supplied with this scene). As Projection type, choose "UV", and as UV Map choose your created UV Map, "Texture". Now you can set your viewport shading to texture and see the checker map responding to your UV Map changes (**Fig.05**).
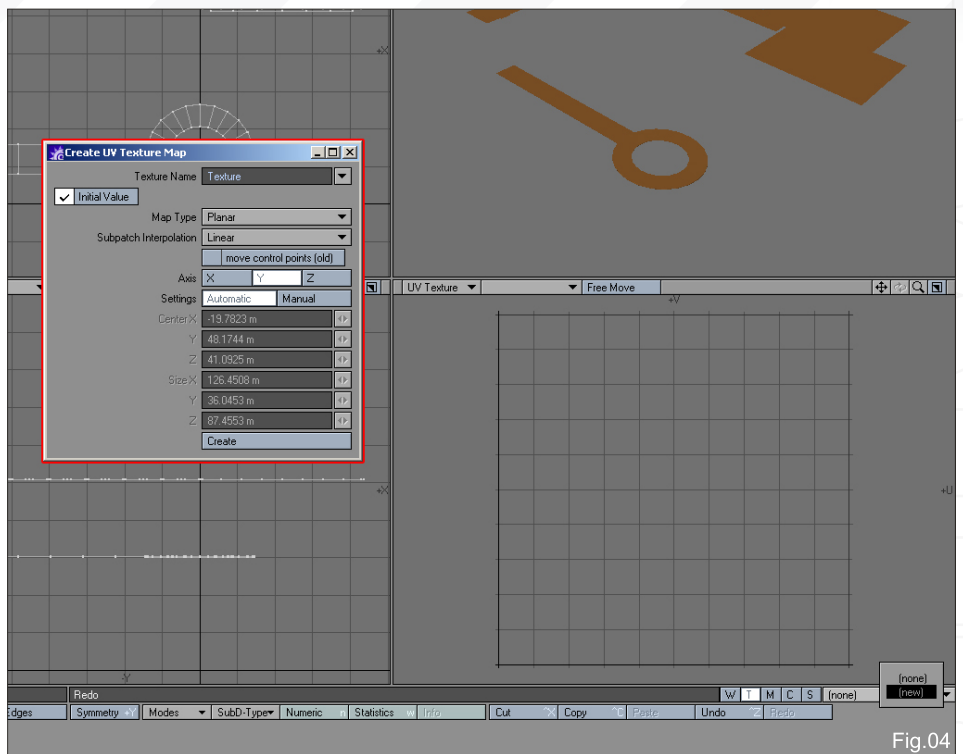
Fig.04
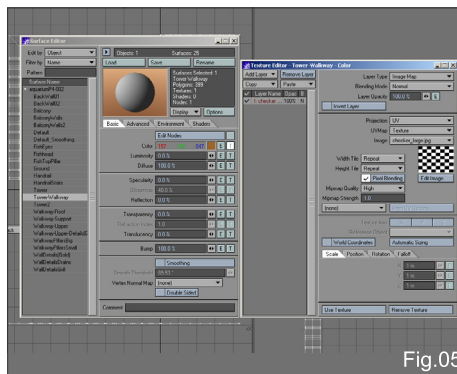
Fig.05
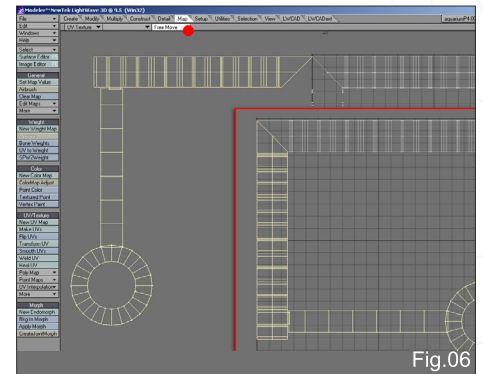
Fig.06
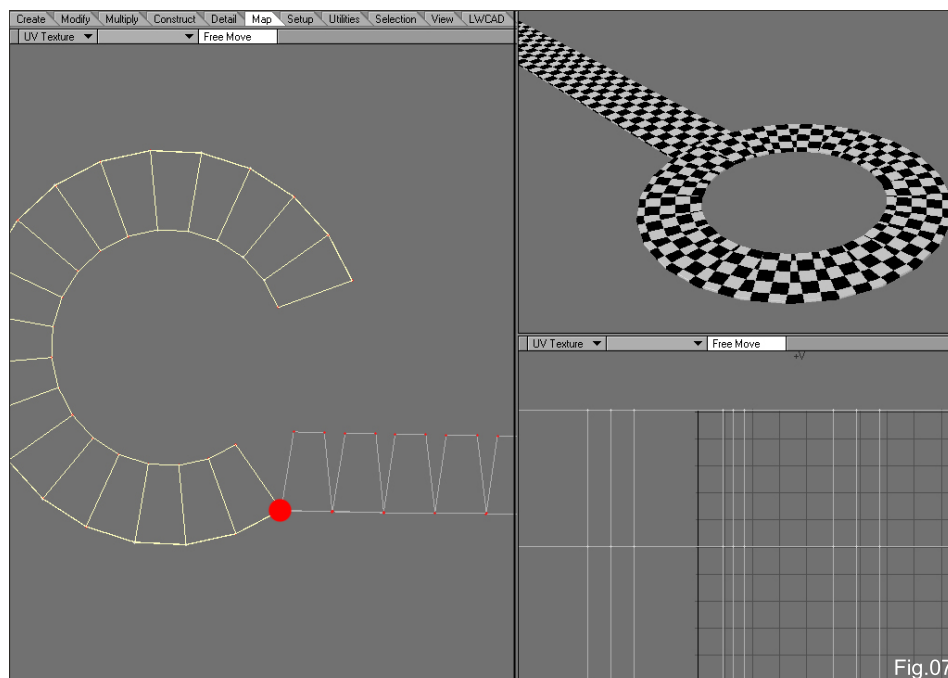
Fig.07

If you have not done so, change one of your viewports to UV Texture to see the UV-Map. Now use move, rotate and scale to place all the parts on a straight line. If you like to part connected polygons, select "Free Move" in the UV viewport, as seen in the screenshot (**Fig.06**).

This way you can even rotate each polygon of the circle to form a straight line. Always use the lower right point of the polygon as a rotation pivot!

When you are done, scale the map so that its height fits the background grid. Don't worry that the width is now approx. 20 times the width of the background grid. This simply means that the texture is repeated 20 times on the horizontal

axis, which is just what we wanted. Now you could, for example, use an image with five wood planks as a texture, and it will repeat perfectly across the whole walkway (**Fig.07**).

Next we make the map for the tower. Select the polygons with the tower material via the "Polygon Statistics" and hide everything else. Now bring up the "Create UV Map" window. You can choose another texture name for this map – this ensures that you don't accidentally change the already-created map. If you feel experienced enough, you can put it all into the same map – this of course makes the material work a bit more comfortable, as you only have to deal with one map. The Tower is perfect for cylindrical mapping, so select this option. As Axis we choose "Y" (**Fig.08**).
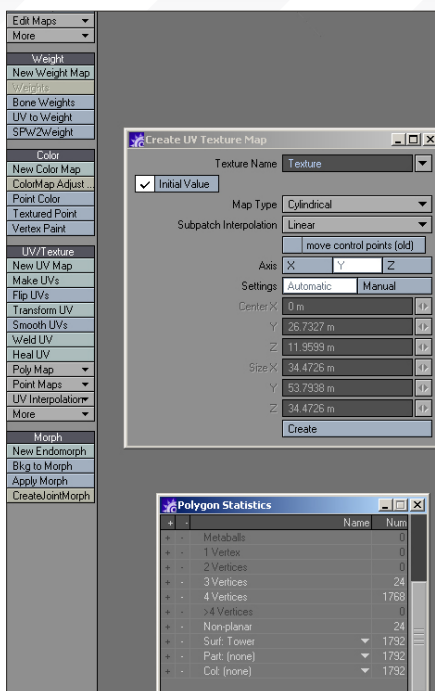
Fig.08
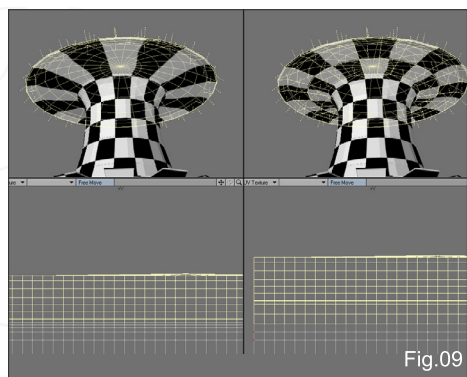
Fig.09

Use the checker map for the tower material again. When you scale the map in the UV viewport, only scale it exactly 200%, 300% etc. This is to ensure that we won't have seams where the texture does not match. When you look at the texture in the viewport you will notice some stretching. Select the polygons (or the vertices of the polygons) where the stretching occurs, and move the map in order for it to be spaced more evenly. Note that you should turn off "Free Move" for this one, as you don't want to part the polygons, but only want to move the mapping (**Fig.09**)!

Tip: You can use "Expand Selection" and "Contract Selection" from the Selection Menu to add or remove a row of polygons from your selection!

You will also notice that the top, where the polygons meet, remains distorted. This always happens when you do cylindrical or spherical mapping. There are multiple ways to get rid of these distortions; you could use blend maps – meaning another map to blend over the distorted area, or you could use a different method for the mapping, which is the best solution for our tower!
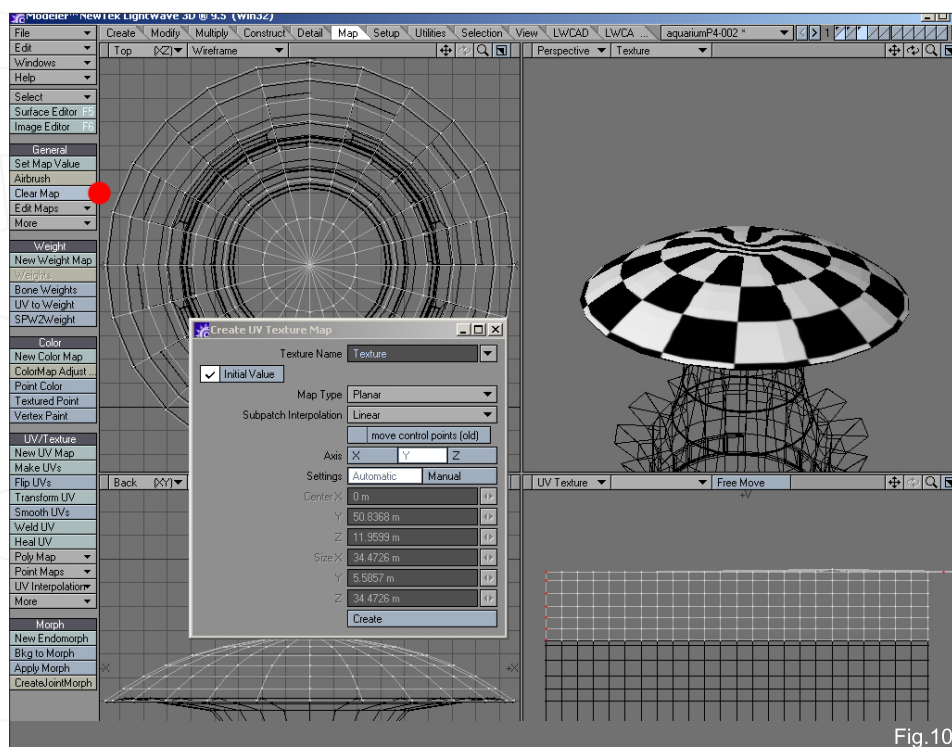
Select the top of the tower, click "Cut", choose a different layer and click "Paste". Now make sure you clear the map from the polygons before you create a new planar mapping. Also add a new material, for example "TowerTop". When you are done, cut and paste it onto the original layer, and don't forget to merge the points (**Fig.10**).

We still have stretching on one part of the support structure of the tower, and no mapping

Fig.10

on the other part. Since this mapping will be similar, we are going to cut and paste both elements to the same layer. Also clear any existing map for these parts (**Fig.11**).

Create an endomorph for these parts. In the lower right corner check the "M" for "Morph". From the drop-down menu choose "new". Make sure that this new map is selected while you do the next step (**Fig.12**).

Rotate and move all elements so that they overlay each other, as shown in the screenshot (**Fig.13**). If they overlay perfectly, it should appear as if you are working with only one object. And as they all look alike, it makes sense to give them the same mapping. Create a planar mapping using the "X" axis.

Select the front of the elements, cut and paste them onto a new layer, and then make another planar mapping – this time using the "Z" axis. In the UV viewport you can now arrange the elements as you like. Once you are happy, cut and paste the front part back to the side part of the support structure. Now be sure to have the "Morph" map selected when you click "Delete Vertex Map". As you can see, the UV map remains untouched when the rotated parts jump back to their original position (**Fig.14**).
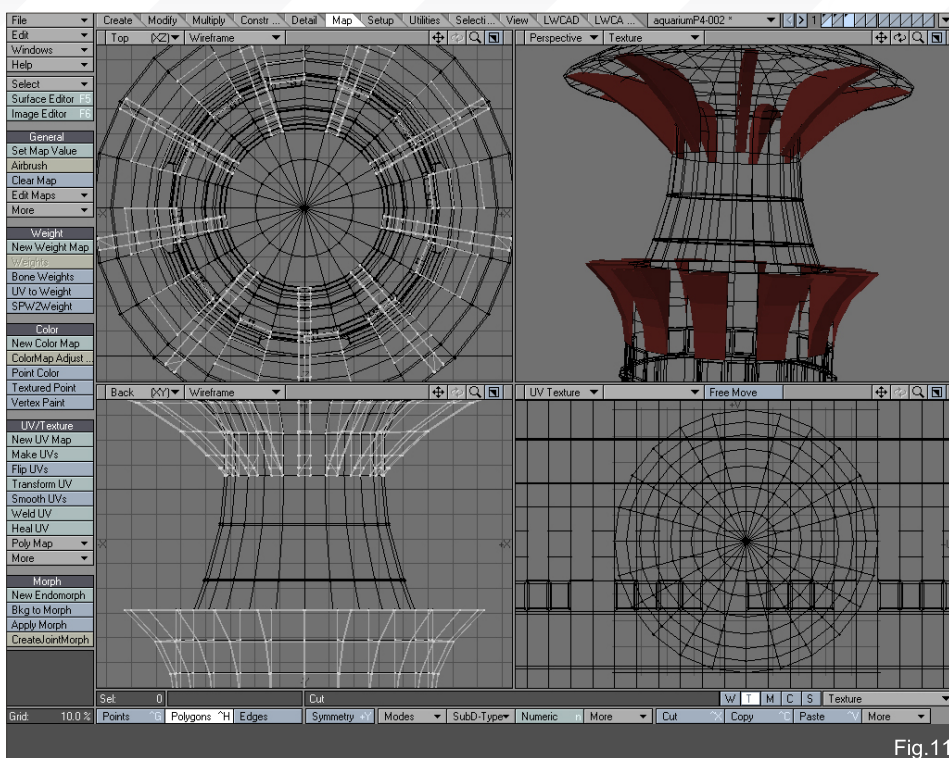
Fig.11
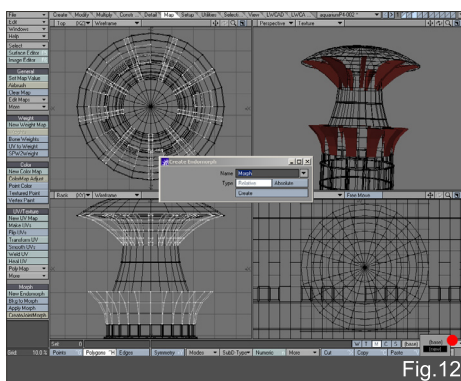
Fig.12
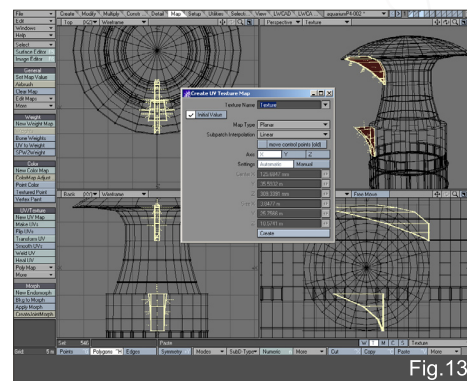
Fig.13
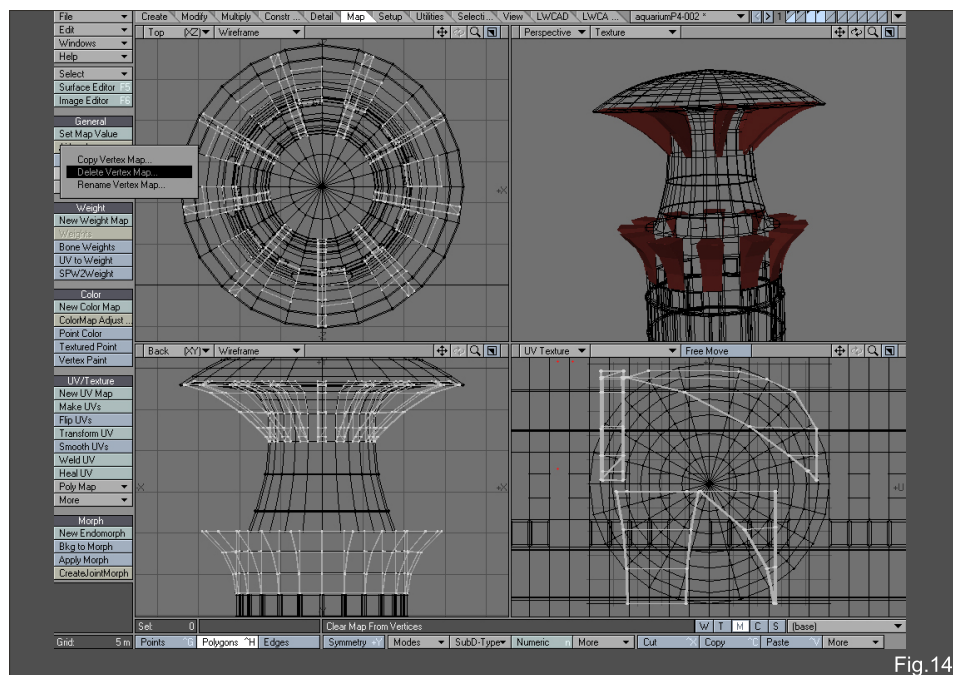
Fig.14

Now also cut and paste this layer back to the rest of the tower – and don't forget to merge the points so we don't end up with open polygons!

Don't underestimate the morph technique! It is the most flexible way to create a UV map and is therefore ideal for organic models – like the fish head. So let's do it again: select the fish head and hide everything else so you can fully concentrate on it. Now create the morph map (**Fig.15**).

For most animal heads, a planar mapping from the side is all it needs to have a good base map. In this case, you can work with only one half of the head and later just mirror it to have the full head again. So delete half of the head polygons.

Next we choose the Magnet Tool. With the right mouse button you can scale the range of influence for the tool and move the pivot point. With the left button you can now grab your polygons and move them (**Fig.16**).

Now try to move the polygons on the top so that they face to the side without overlapping when viewed from the side. You can do the same with the front polygons. Keep in mind that the important view is the side view, only in this view do you need evenly laid-out polygons.

When you are done with the Magnet Tool, choose "Smooth" to ease out smaller distortions. As values, try strength of 3.0 and iterations of 15. The Smooth Tool has the same effect here as it would have to use UV relax (**Fig.17**).

Now you can create the texture with planar mapping from the side. Keep in mind that the morph technique works best with low resolution models as they are handier to work with. For organic models you would normally prefer to work with a low resolution subpatch model. The way to work is quite similar – you just don't have as many points/polygons to move around.

There is a special option in the "Create UV Map" window for subpatch geometry. Just change
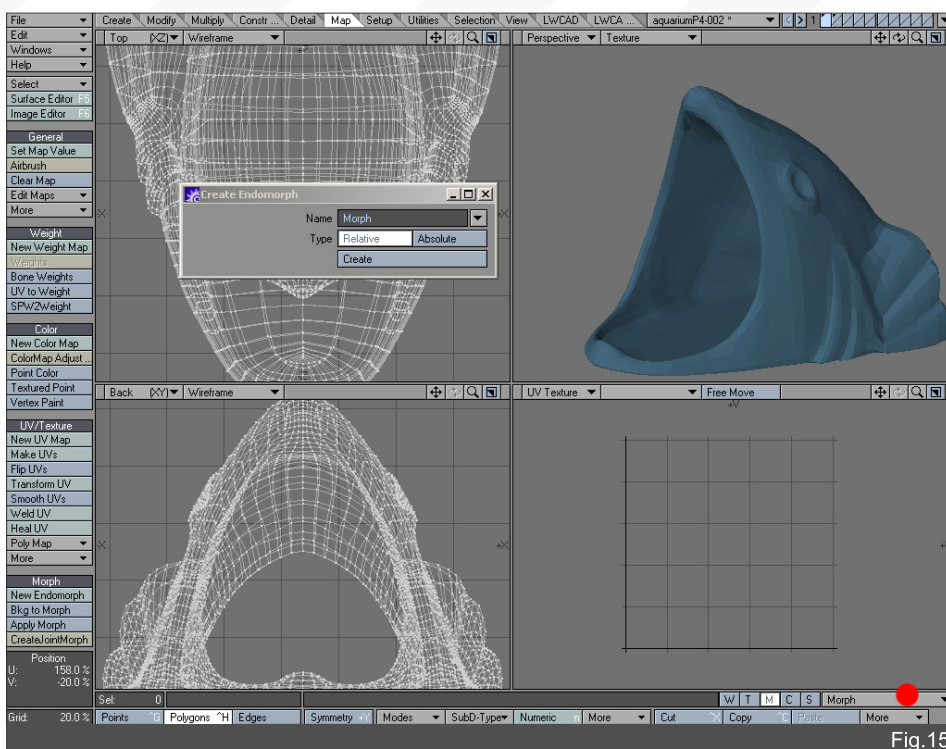
Fig.15
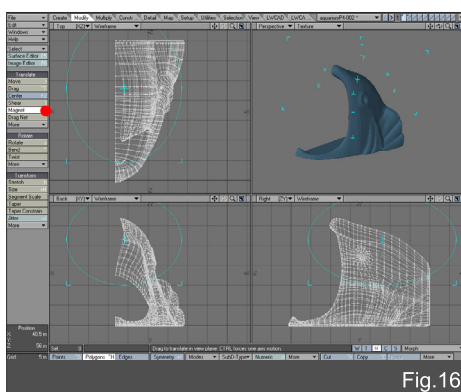
Fig.16
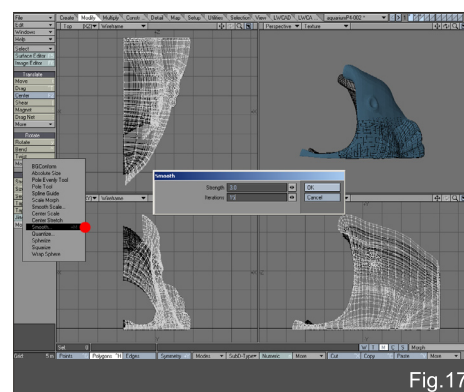
Fig.17
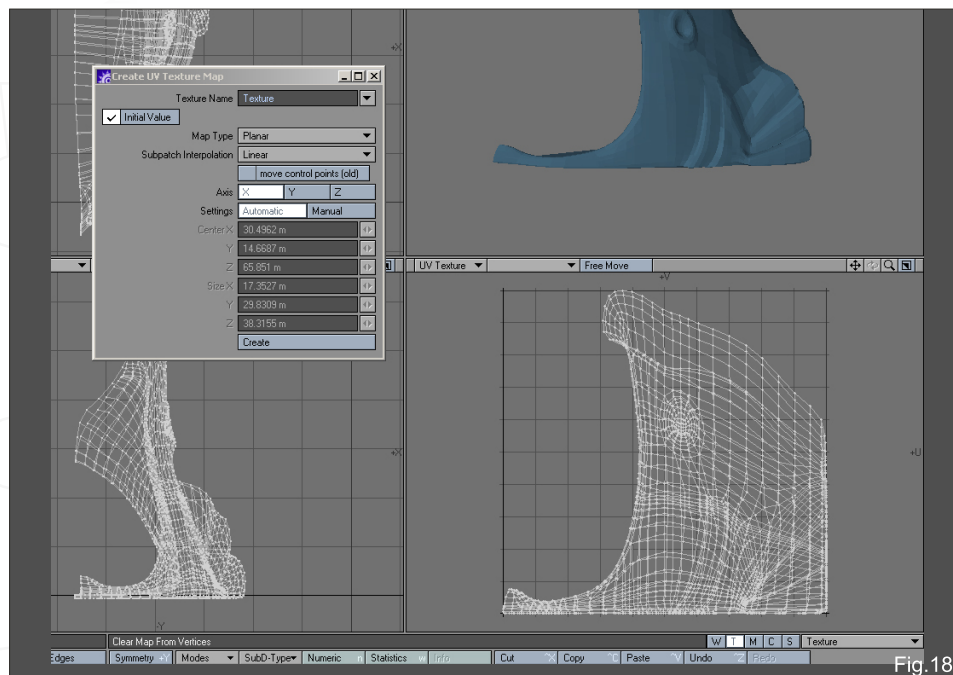
Fig.18

the "Subpatch Interpolation" from the default "linear" to "subpatch", then your UV map will be smoothed so it fits the divided geometry without any distortion (**Fig.18**).

Tip: Unwrapping for organic models can still be a time-consuming process. It is important to know the basics, but you can also use other tools for assistance with your UV map creation, for example the easy-to-use software, "Unfold 3D". There are also great (free) plug-ins for LightWave that may help you, most prominently the PLG UV Tools (**http://flay.com/GetDetail. CFM?ID=23**0).

Add the checker map to see if you made a good layout. If you are satisfied, delete the morph

map, mirror the fish head mesh and merge the points. There will stretching on the inside of the head, which should not be very obvious, so we leave it this way. The texture for the fish won't be repeatable. This means that the texture you use with this map will fit exactly (**Fig.19**).

For this kind of map it is usually a good idea to create a UV-Template. Simply maximise your UV viewport with the map selected and press the "Print Screen" button on your keyboard to make a screenshot. Then paste it in Photoshop, make a mask around the UV grid and trim the image to the selection (**Fig.20**). Now you can start to work on your texture!

Tip: If you feel this is not exact enough, download the free plug-in "UV Imaginator" – with it you can create an image directly from your UV map. You can find it via flay (**http://www.flay.com/GetDetail.cfm?ID=1172**).
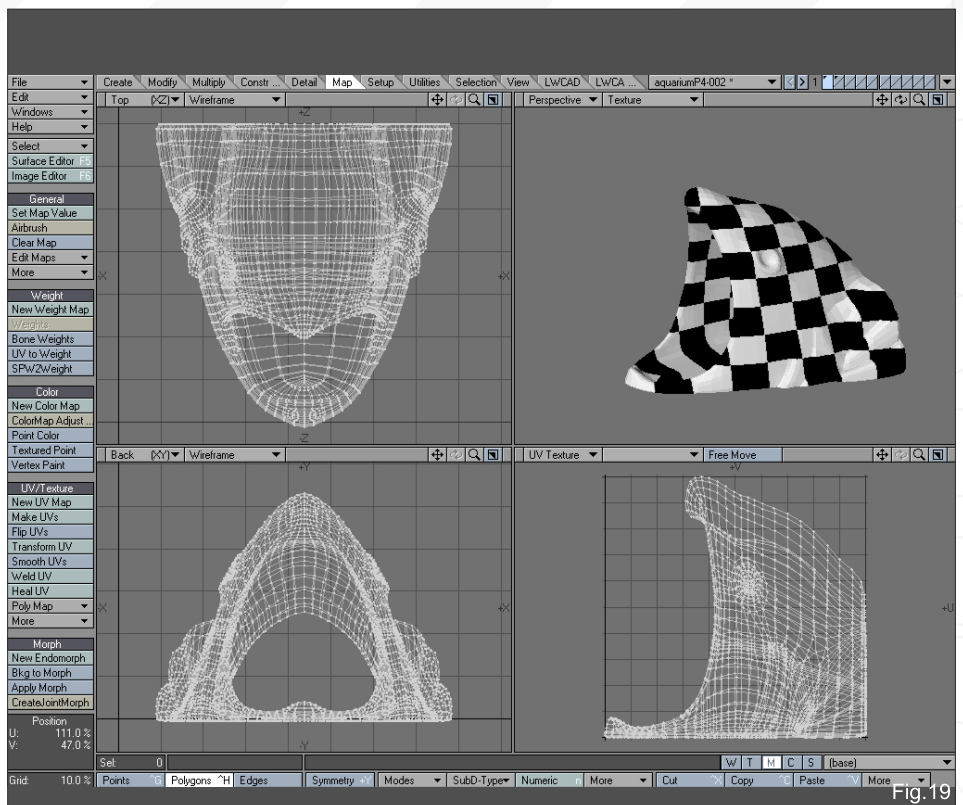
Fig.19
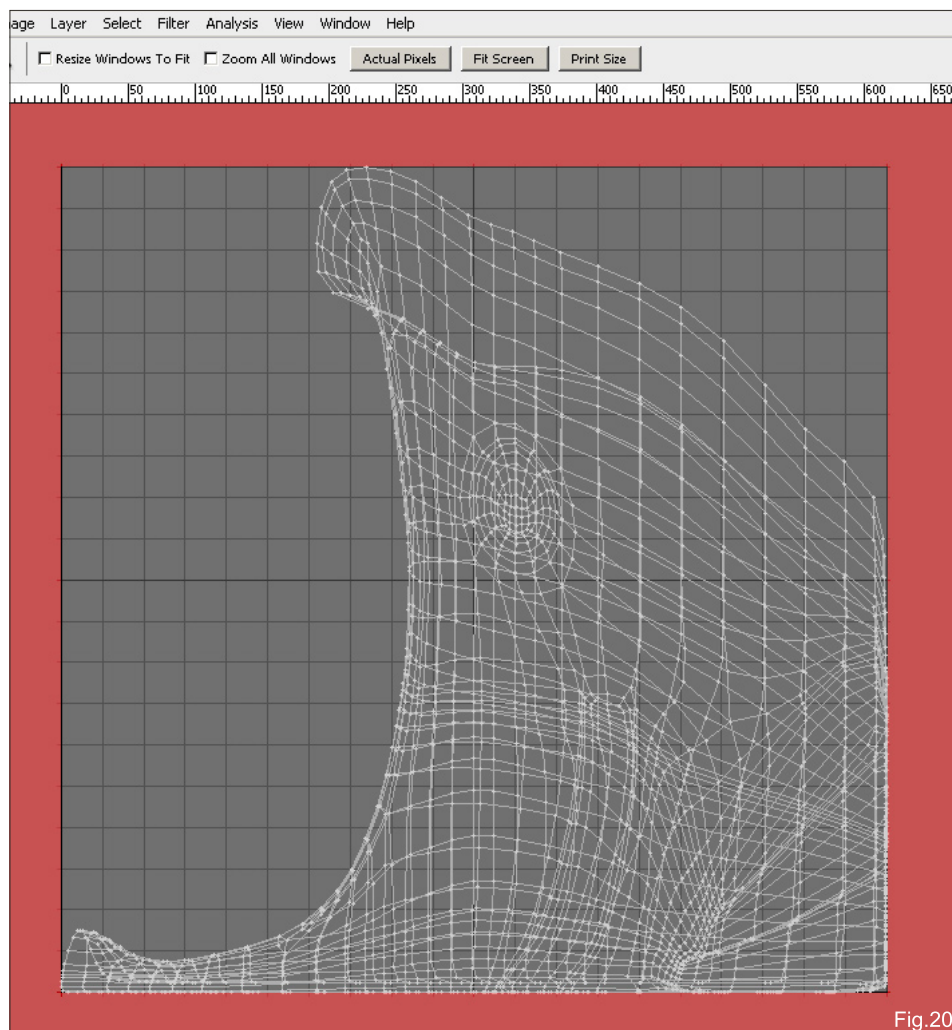
Fig.20

With the techniques introduced in this tutorial you should be able to create UV maps for all the other parts of the scene. In the next instalment of this tutorial series we will talk about creating materials and texturing. If you have any questions, please feel free to contact me via my homepage.

AGED & WEATHERED ENVIRONMENT
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PART 4: MAPPING

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CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

INTRODUCTION

In this part of the tutorial – Part 4 – I will cover the basic method of UV-mapping on polygons inside Maya, and I hope this will be of good use to those of you who are following this tutorial series.

In Maya, the general methods of mapping in use today are "Planar Mapping", "Cylindrical Mapping", "Spherical Mapping" and "Automatic Mapping"; you can find these under Menu > Create UVs (note: after Maya 8.5 there are some changes to this menu). I will introduce these mapping methods together with the "UV Texture Editor" based on this scene (**Fig.00**).

When we are working on UV-mapping, we will usually apply a chequered map to our object. Inside Maya's Material Editor, you can easily find a chequer under the 2D Textures section – just apply it to the colour section of the Maya shader and choose your favourite colour
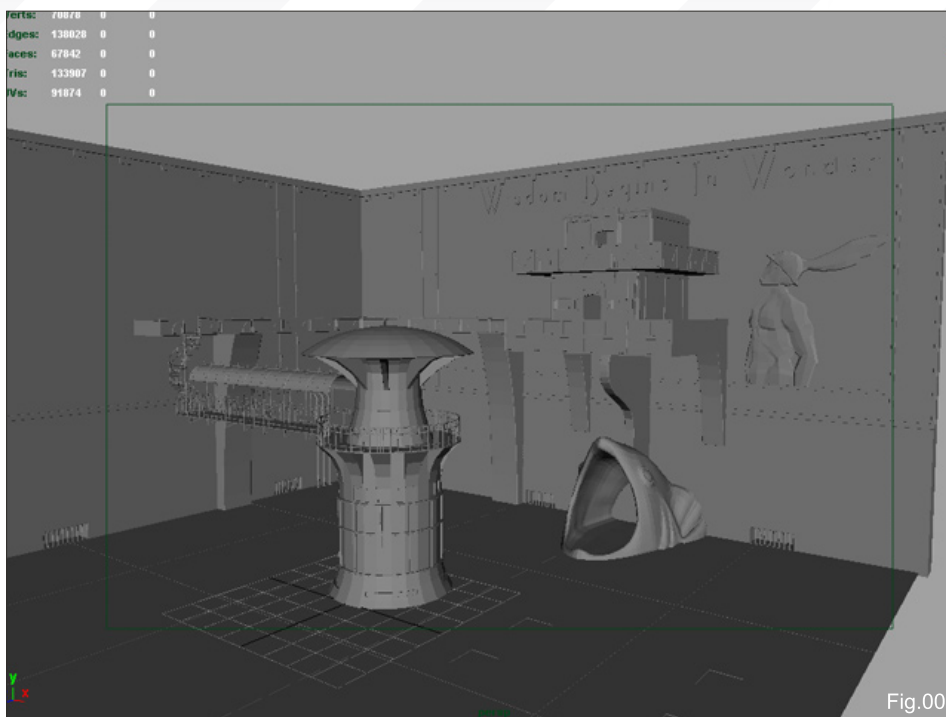
Fig.00
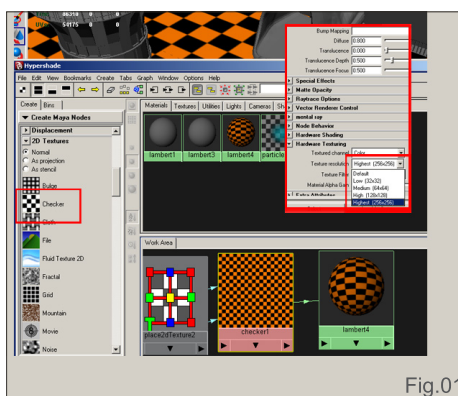
Fig.01
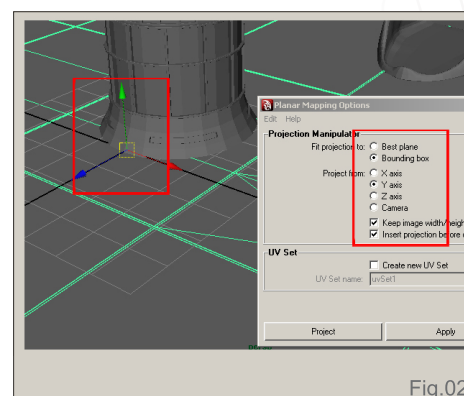
Fig.02
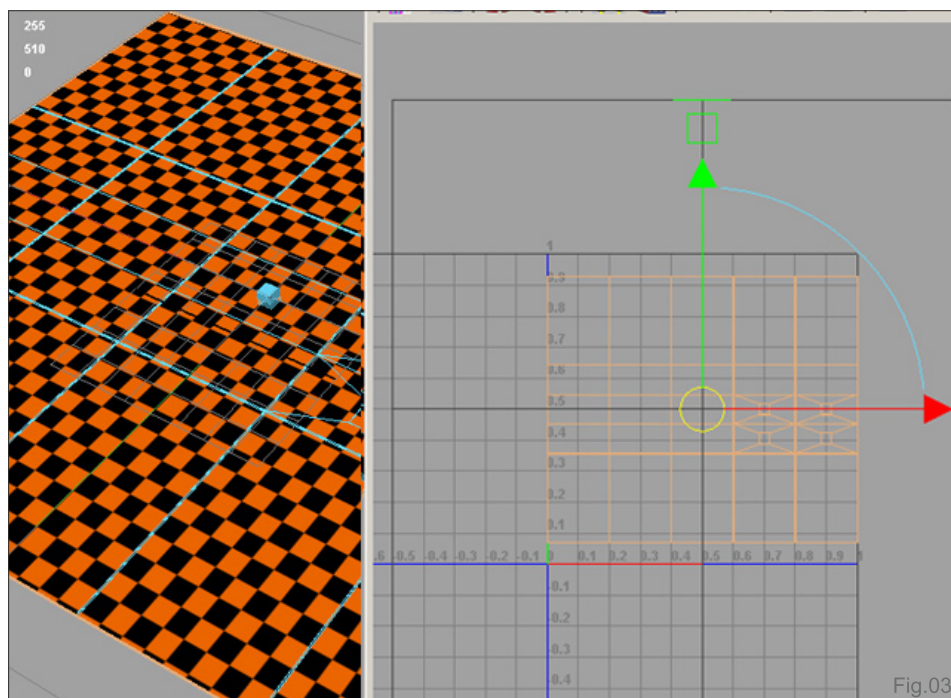
Fig.03

(**Fig.01**). By default, under Hardware Texturing, the Texture resolution will be set to low, and this will make your chequer appear blurry inside your scene – just switch it to a higher level in the drop-down menu: Hardware Texturing > Texture resolution > Choose either /Low/Medium/High/Highest, depending upon your personal requirements.

PLANAR MAPPING

This is a common mapping method which is a projection method based on the direction of the axis. Here is an example of planar mapping on the floor (**Fig.02**). We can see that the floor has lots of gaps in it which are facing different directions. After hiding those objects which are currently not in use – under Display > Hide > Hide Unselected Object – we will first of all do a

general Y projection on the floor (**Fig.03**), and after this we will select only those faces which have a different direction and then do another projection followed by the direction of the axis, sewing the separated UV pieces together by selecting those edges inside the UV Texture Editor (Polygons > Sew UV Edges > Move and Sew UV Edges).

Here is something I need to mention: if those UVs didn't have an obvious distance inside your scene, after a single direction of projection we can use the Relax UVs option inside the UV Texture Editor to separate those overlapped UVs without doing another direction of projection (**Fig.04**). For example, inside the UV Texture Editor we select the border of the UV faces by going to Select > Select Shell Border and then to Polygon > Relax, checking Pin UVs and Pin selected UVs to relax those UVs of edges between the gaps on the floor.

Automatic Mapping

Automatic Mapping is the second method I will introduce; this is a projection method based on a number of planes from different directions at one time. It is a useful method for those objects with an irregular direction of faces, but it can also be a very quick and useful way to
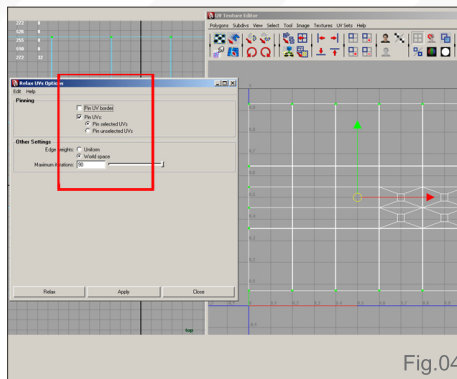
Fig.04
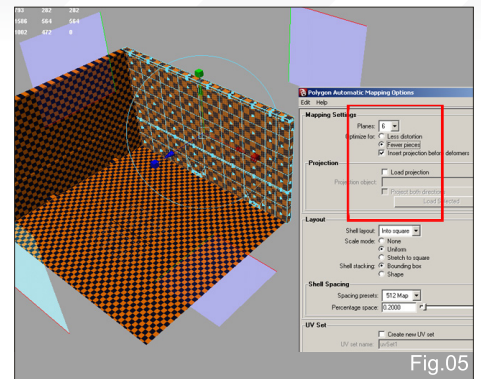
Fig.05
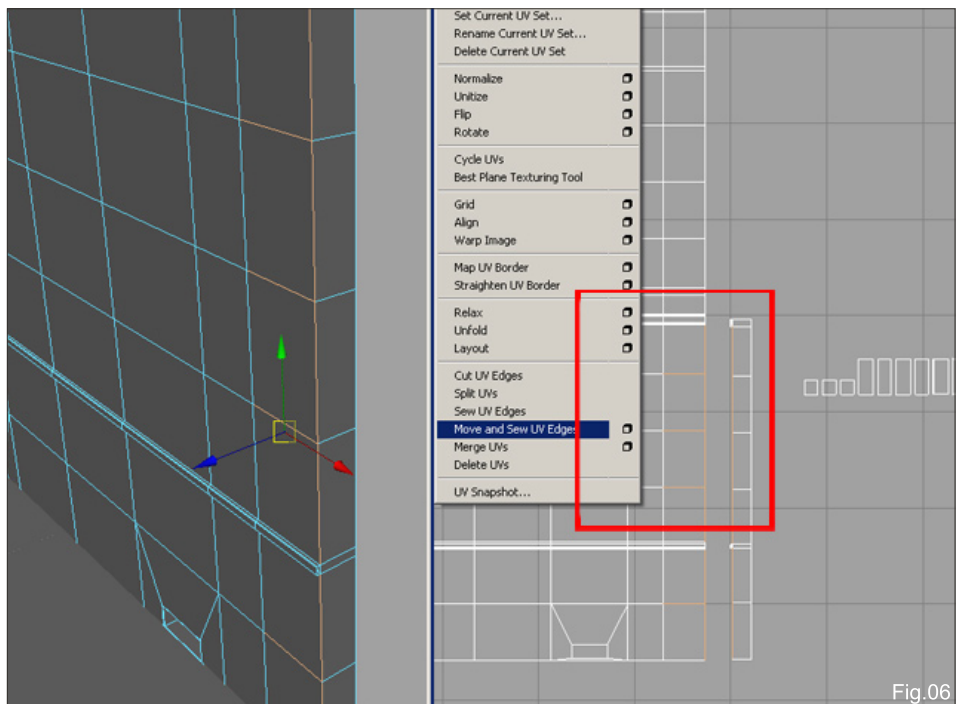
Fig.06
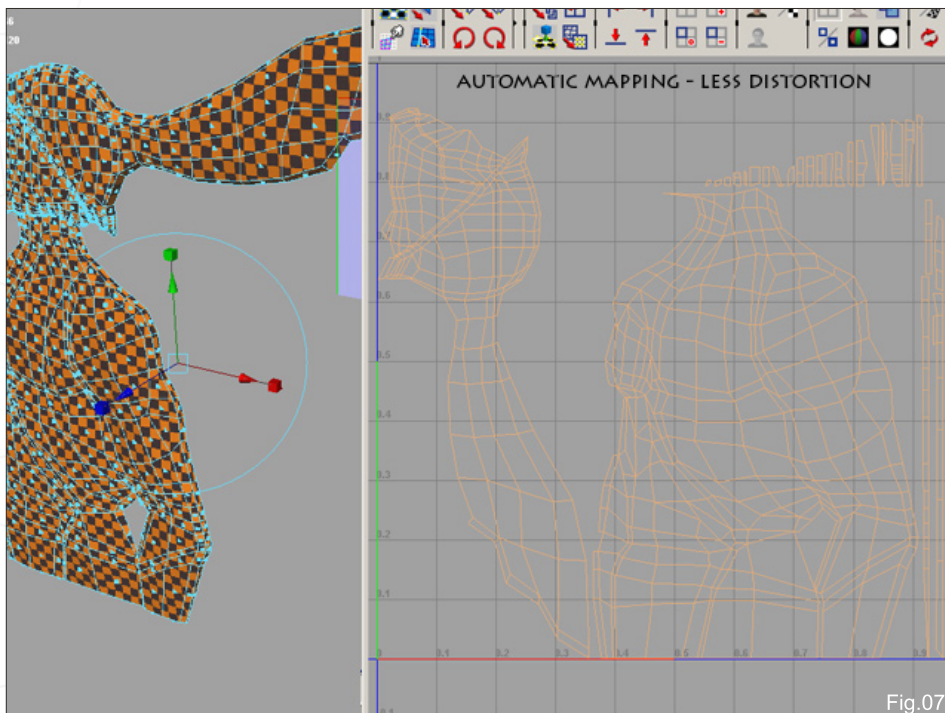
Fig.07

do on object with a regular face. Here is the first example, using automatic mapping to do a projection on the wall and sew those UV edges inside the UV Texture Editor. By default, six planes automatically give you a good projection on an object with regular faces (**Fig.05**). After projection, you will see the UVs are nicely laid out without overlapping inside the texture editor, and we will then use the Move and Sew UV Edges tool to sew those separated edges by selecting them, or we can alternatively use the Cut UV Edge tool to separate some edges (**Fig.06**).

The second example here is to do a projection on the figure relief on the wall. Here you can see the different results between less distortion (**Fig.07**) and fewer pieces (**Fig.08**). Less distortion helps you to keep your UVs in correct

proportion, but leaves you with more separated pieces that need to be sewed; fewer pieces helps you to keep your UVs in – obviously – fewer pieces, but those UVs will be distorted if the object has extremely irregular faces. You can use a higher number of planes to avoid distortion or use the Relax UVs tool to smooth out distorted UVs – it depends on the situation. Here is an example of using the Relax UVs tool and the Smudge tool (available after Maya version 8) to smooth out those distorted UVs (**Fig.09**).

Cylinder Mapping

Cylinder Mapping is the third method I will discuss here. The basic idea of projection is similar to planar mapping, but with a cylinder shape as your projection shape. Here is an example using the roof of the walkway. After

Fig.08

Fig.09
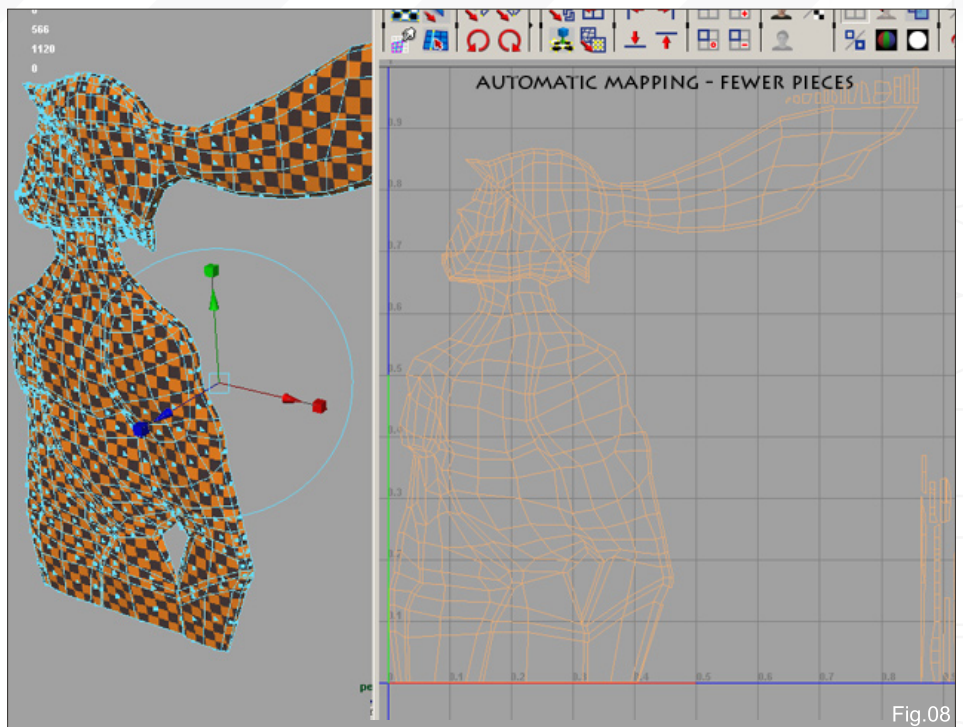
Fig.10
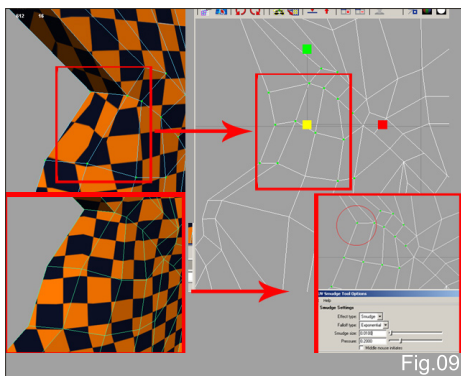
Fig.11
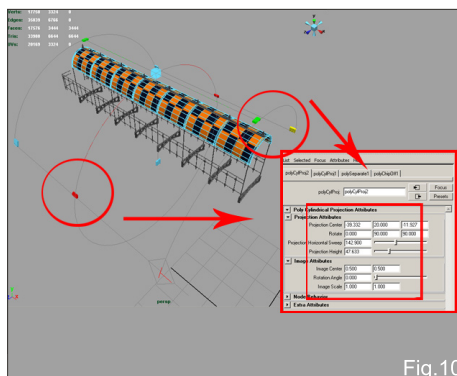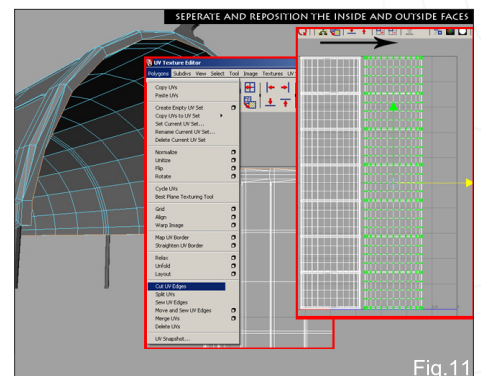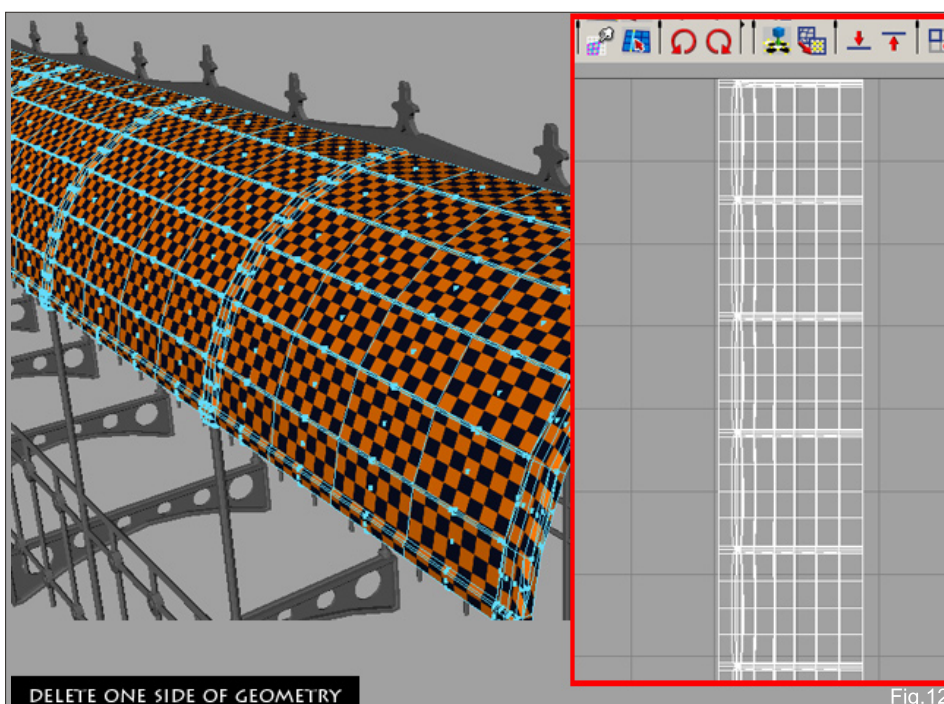
DELETE ONE SIDE OF GEOMETRY
Fig.12

projection, you will find a new section name after the projection name inside the Attribute Editor of your object. From there you can start to change the direction of your projection, or height, for a better fit on your object. These options refer to the projection tool that you see in your viewport (**Fig.10**). We can see the roof of the walkway has exterior and interior faces – you can select those faces separately and do another projection, or separate the faces inside UV Texture Editor with the Cut UV Edge tool and sew them back together after repositioning (**Fig.11**). Usually, when we are working on a symmetrical object, we will cut away one side of the object and mirror the geometry after the UV texture maps have been laid out nicely – this will save you a lot of time without repeating the same process (**Fig.12 – 13**).

SPHERICAL MAPPING

The method of Spherical Mapping is the same as cylinder mapping, but uses a sphere as the projection shape. For the purposes of this tutorial, I didn't find any suitable objects with which to introduce this method to you, but you can certainly experiment with it on other objects if you find they fit better with this method!

MIXED METHOD MAPPING

Here I will use the tower as an example to introduce a mixed method of mapping onto one object. The tower has different kinds of shapes and some duplicated object; let's focus on the main shape of tower (**Fig.14**). Do an automatic mapping to layout the UVs, and then select only the faces on the roof. Do a Y- axis plane mapping, repeat this method on those

MIRROR GEOMETRY AND FLIP UVS FACES
Fig.13

Y-AXIS PLANE MAPPING
Fig.14

CLYLINDER MAPPING
Fig.15
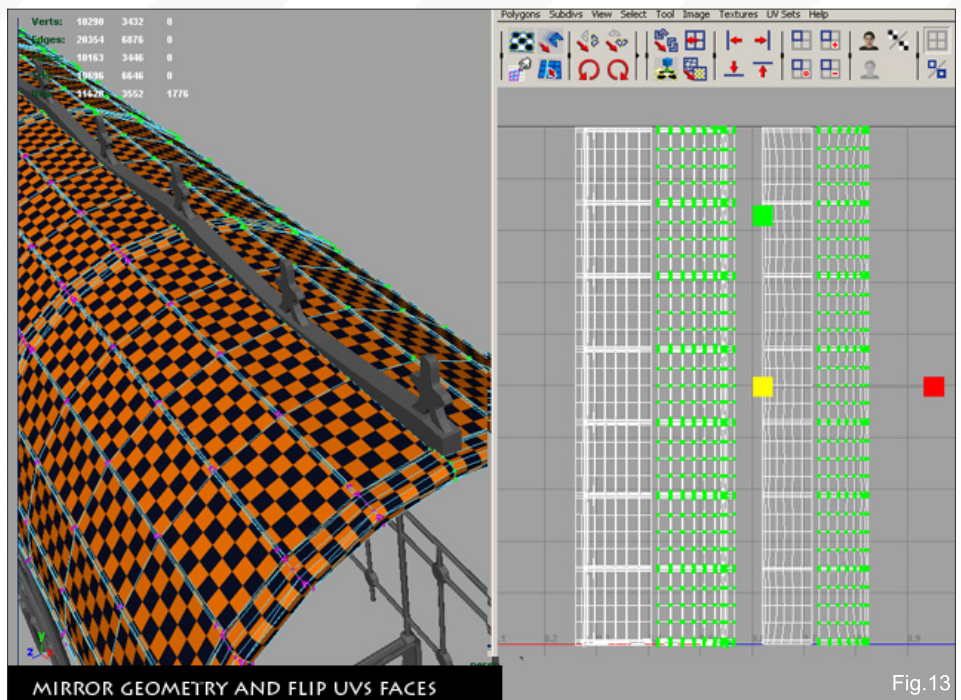
RELAXING OVERLAPPED UVS
ALIGN UV TOOL
Fig.16
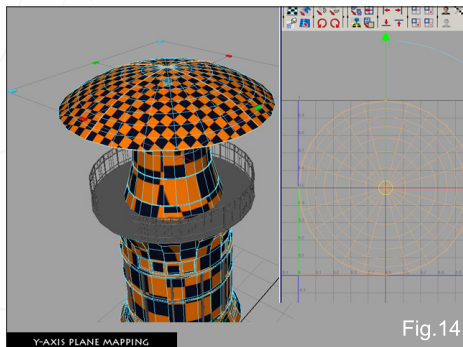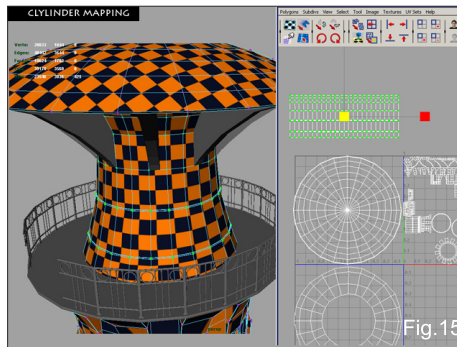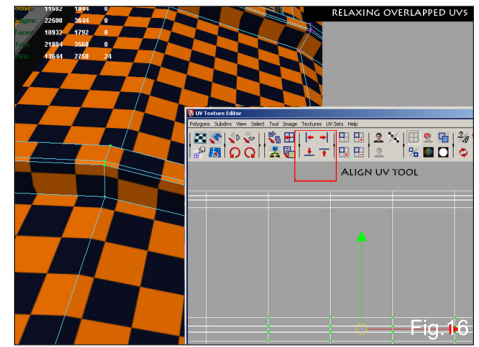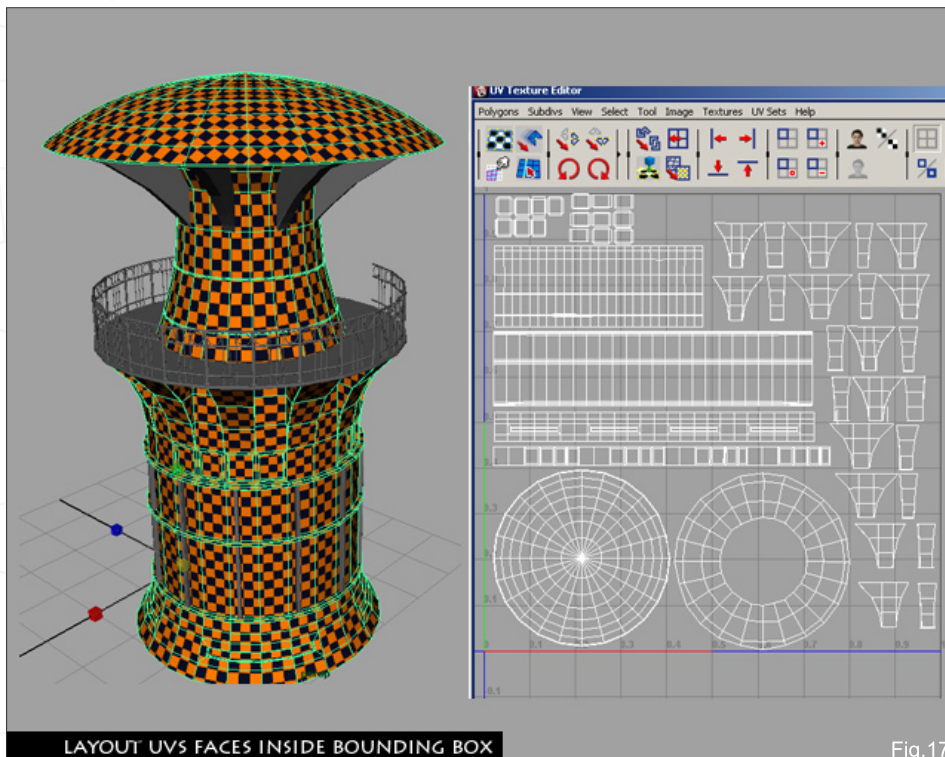
faces below, select the faces of the upper neck of the tower and perform cylinder mapping (**Fig.15**), using the Relax tool to smooth out the overlapped UVs. After relaxing the UVs you can use the UV alignment tool to line up some of the UVs which are out of position (**Fig.16**). After all the main mapping is done, simply sew and reposition the rest of the UV pieces (sometimes it is not necessary to sew all the UV pieces together, because we can get a seamless texture with the help of Photoshop tools) and at the end, adjust all the UV pieces with the help of the chequer to get them at the same scale and fitting inside the UV bounding box for later exportation into Photoshop (**Fig.17**).

Coming to the part of the fencing, we can just perform automatic mapping again here to layout the UV map; later we will apply a seamless texture onto it.

LAYOUT UVS FACES INSIDE BOUNDING BOX
Fig.17

3dcreative

BETWEEN MODELLING & TEXTURING

In the final section of this tutorial, I will use the big fish head as an example of automatic mapping, and the process between modelling and texturing.

Usually, when we're modelling an organic form (**Fig.18**), we use the Smooth tool to smooth

"SMOOTHED" POLYGON

LOW POLYGON

Fig.18

UVS LAYOUT AFTER AUTOMATIC MAPPING
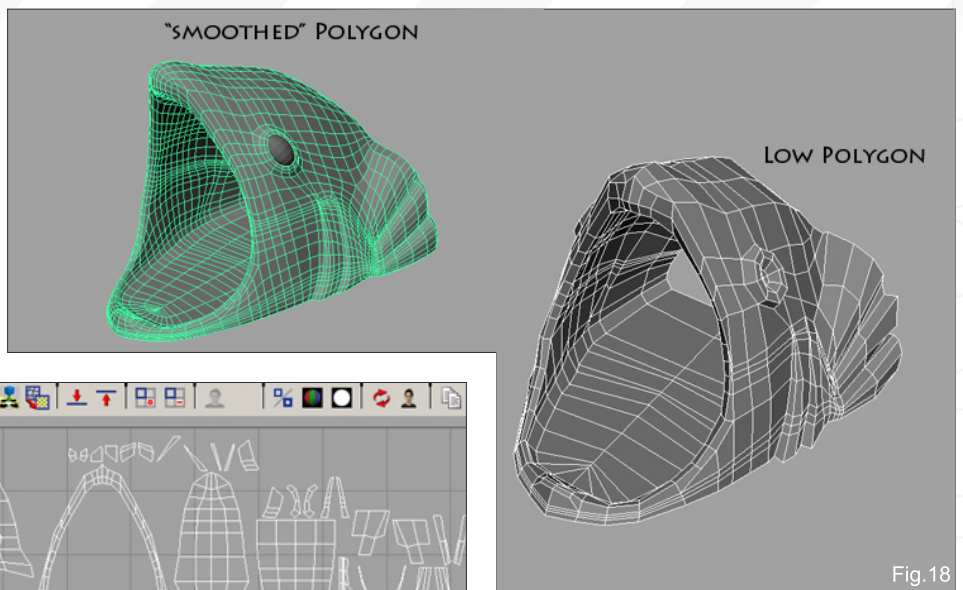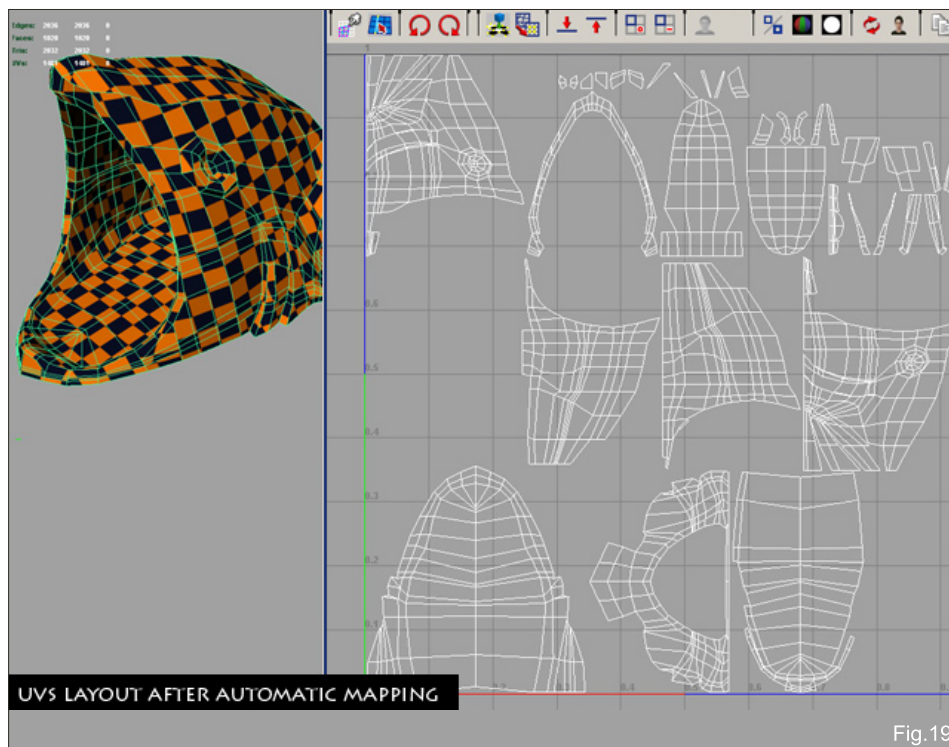
Fig.19

out our object, but at the same time the UVs will become complex and it may be hard to layout the UV. If you know the form of your object, it will be easier to map the object before applying the Smooth tool on it. First do six planes of automatic mapping on the fish head before smoothing it, and the UVs will be laid out separately inside the UV Texture Editor (**Fig.19**). Then cut the fish head in half and place those separated UV pieces in the correct position, and start to sew some pieces without strong distortions. In between, the process of using the Smudge and/or Relax tools can help to relax some distorted UVs (**Fig.20**).
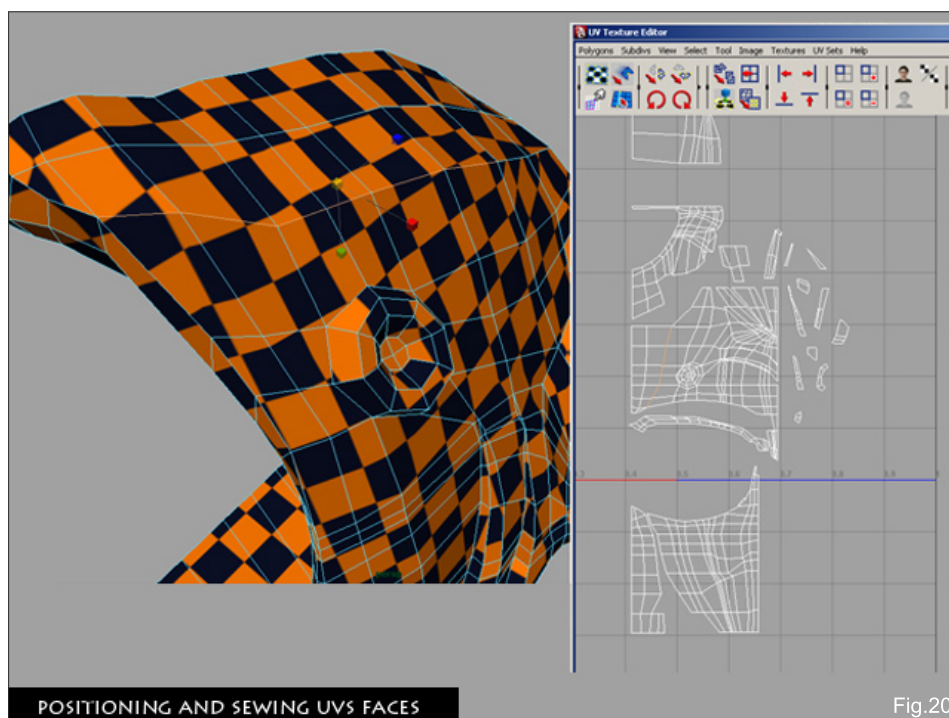
After all the separated UV faces have been sewed, simply duplicate the geometry, scale the related axis to -1, and combine them together inside the Texture Editor. Select all the UV faces of the duplicated geometry and flip them in a horizontal direction, using the Move and Sew UV Edge tool to sew the duplicated UV faces of geometry (**Fig.21**).

POSITIONING AND SEWING UVS FACES

Fig.20

DUPLICATE GEOMETRY
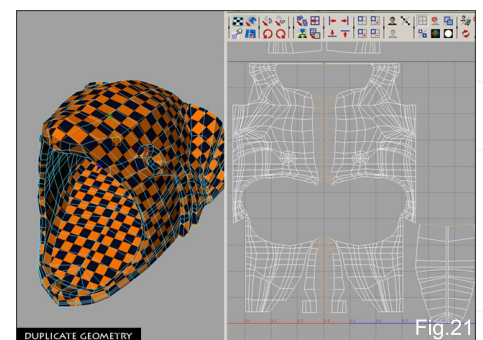
Fig.21

After the UV map has been nicely laid out, start to smooth the geometry. Inside the Smooth tool options, by default Smooth UV will be checked. This will smooth the UV together with the geometry (**Fig.22**). After the object has been smoothed and it's almost done – and don't forget to place your UVs inside the bounding box – use the Polygon > UV Snapshot tool to create the UV map for Photoshop. You can choose .tif or .tga as your export format, and Maya works with textures in squares –1024 x 1024 pixels will be enough for our current use (we will cover some of this topic in a later part of this tutorial series).

FINAL CONCLUSION

So you can see that all of these mapping methods in Maya have no magic in their processes! You need a lot patience to layout the UV maps, and most of the time you need to take care over the usage of your resources when working on a complex scene. Sometimes you'll keep some UV faces out of the bounding box or delete them when they won't be seen inside the camera angle, in order to get full use of the texture resolution (for example, the backside of
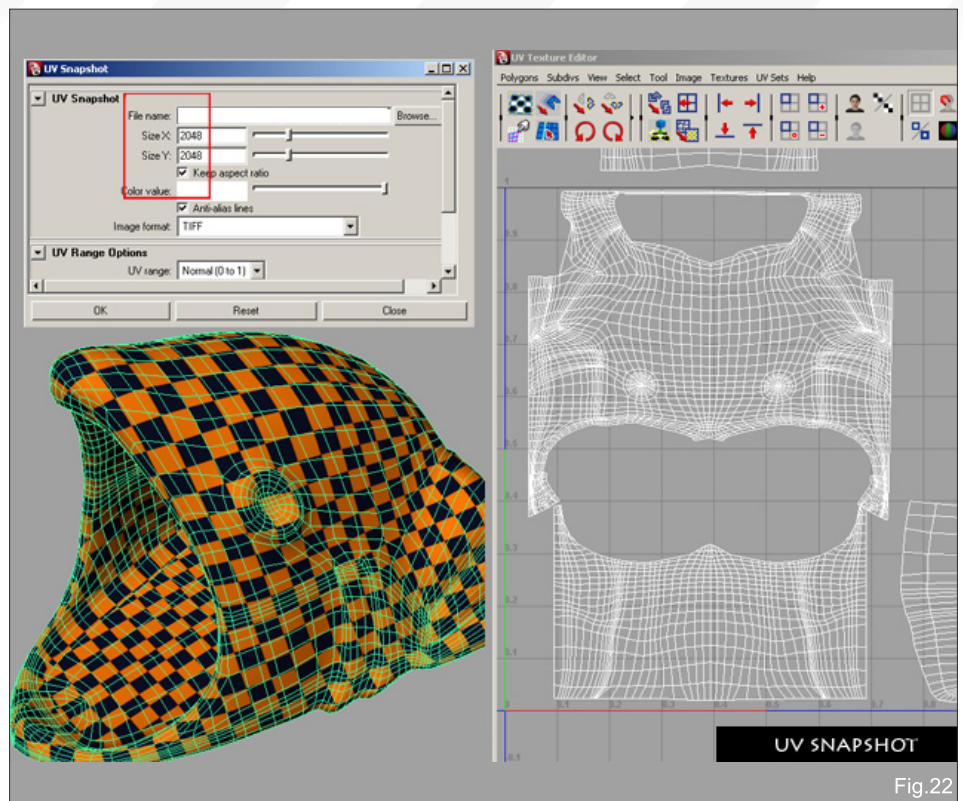
Fig.22

the wall or the bottom of the fish head). If there are any empty spaces inside the UV bounding box then you can try to combine difference geometries together (when they have the same scale inside your scene) by using the same UV

map. Use the UV map wisely and it will give you better results in terms of resolution and rendering time (we will cover this topic in a later part of this tutorial series). It's a puzzle, so don't forget to choose your favourite colour for the chequer map!
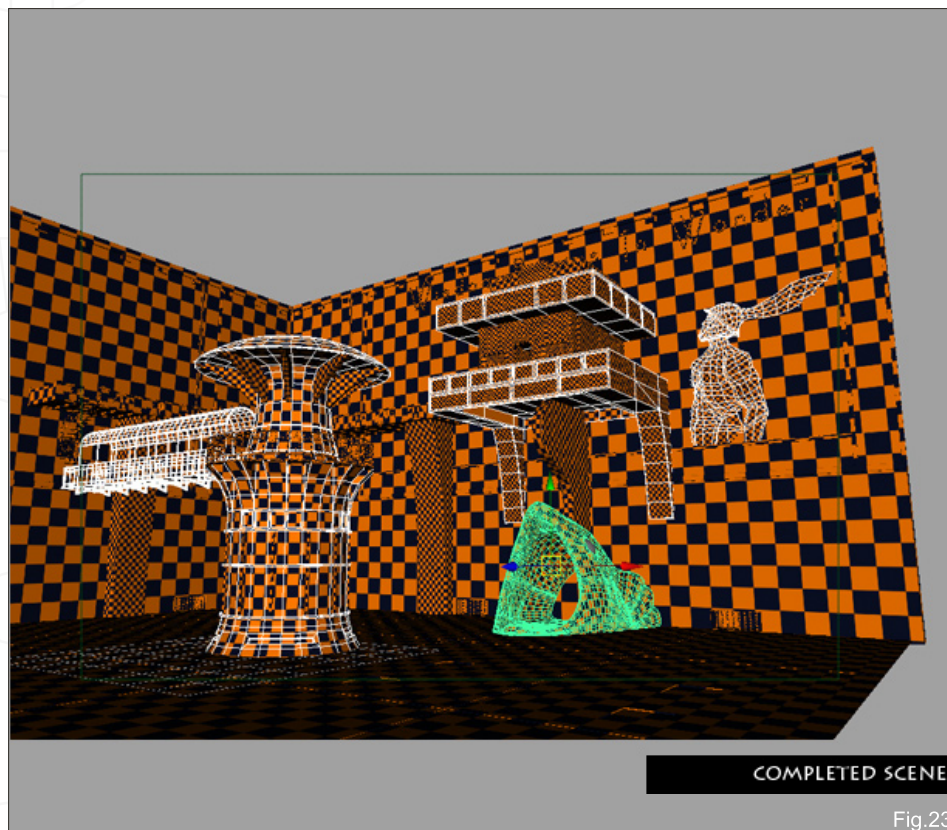
AGED & WEATHERED ENVIRONMENT
CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

TIONG-SEAH YAP

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COMPLETED SCENE

Fig.23

Creating a Complete Scene From Concept to Render

This series will run over the next six months and will endeavour to give you an insight into how a fully realised 3D scene may be arrived at from beginning to end. The tutorials will attempt to address the key issues and techniques appropriate in achieving this, from concept sketches through to building the 3D scene, mapping and unwrapping, texturing and eventually to lighting and rendering, culminating in a final render. The emphasis over the course of the series will be on the texturing, which will be covered in two of the six instalments, and principally the aging and wear of materials.

The schedule is as follows:

Issue 037 September 2008
Part 1: Importance of Reference

The series will begin with a look at the gathering and importance of reference material, and then transposing these into some concept sketches and a concept / production painting.

Issue 037 September 2008
Part 2: Modelling Overview

This chapter will go on to deal with a general modelling overview, which will be non-software specific, and then follow with a look at Photoshop and some general preparation of textures.

Issue 038 October 2008
Part 3: Preparing the Textures

This chapter will focus on Photoshop and more specifically, the job of preparing textures, including painting out seams and making images tileable.

Issue 039 November 2008
Part 4: Mapping

This chapter will focus on the mapping and unwrapping of your scene

Issue 040 December 2008
Part 5: Texturing Principles

This chapter will focus on texturing principles and will cover texture resolution, bump specular and normal maps along with combining textures. It will also cover using masks and adding dirt and grime

Issue 041 January 2009
Part 6: Lighting & Rendering

The final chapter will discuss lighting and rendering techniques and show how a simple lighting rig can be set up, along with different render passes ready for a final composite in Photoshop.

AGED & WEATHERED ENVIRONMENT
CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

Once you have finished modelling every element of your scene, it's time to start the texturing process. It is one of the key tasks of a CG work: good texturing can save you a lot of time, and it can also make the difference between a nice rendering and a weak one. So let's see what it's all about, and how XSI handles this delicate part of the work.

Basically, a "texture" is an image (e.g., a picture) that you can "wrap" around an object's surface, so "texturing" is the process of applying this image to the object, and "projection" is the way this picture is applied to a mesh object (**Fig.01**).

Since an object can have any kind of shape, there are different types of basic projections from which you can start the texturing process. The more regular the object's shape, the easier the texturing task will be.

Let's take some regular solids for example: a sphere, a plane, a cube and a cylinder. XSI has a specific type of projection for them all,

Texture (2D image)
Object (3D mesh)
Wrapping Projection
Textured Object

Fig.01

Spherical
Planar
Cubic
Cylindrical
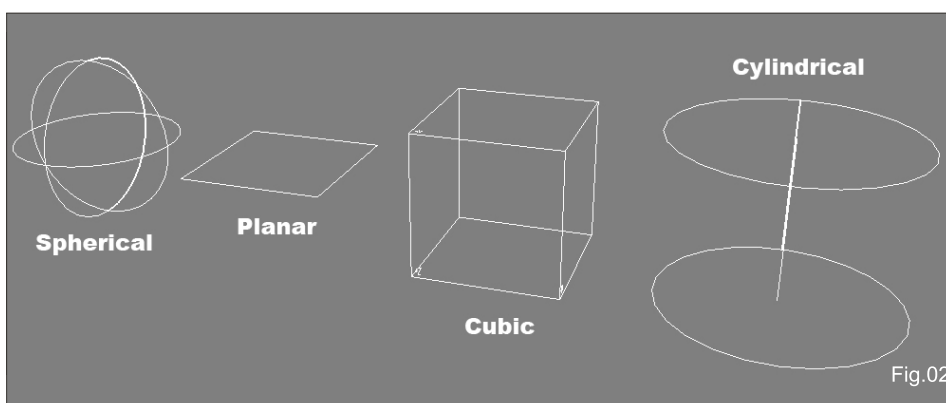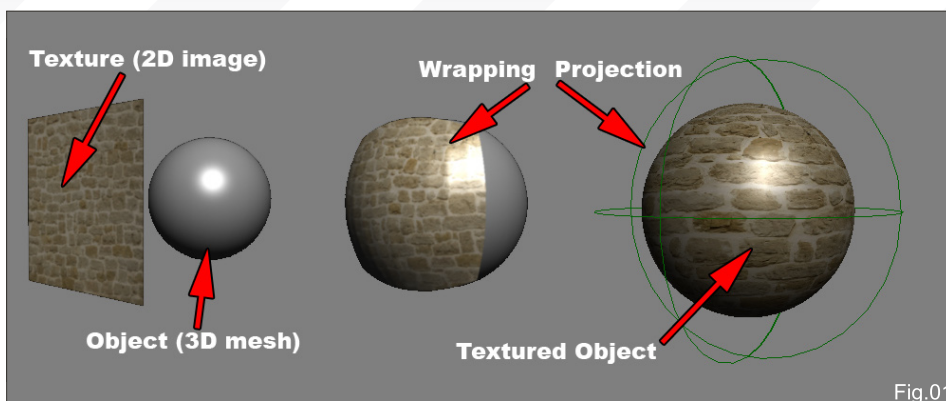
Fig.02

so you can just assign a texture in the shader and choose the right kind of projection for your object (**Fig.02**).

But honestly, there are very few chances that the objects in your scene will be regular solids. Let's take our aquarium scene for example: after a quick glance, you can notice that even the most simple object in the scene (the floor) is not just a flat plane, but it has some inner extrusions and indentations (**Fig.03**).

So, what if the object you have to wrap a texture onto is not a regular solid? In that case, unwrapping and sub-projections is the way to go. This means you have to use the powerful Texture Editor that you can find in XSI, which we will examine in more detail later.

Let's make a practical example with a real object in the scene. The floor will be a good starting point. Before using the real textures for your objects, it is a good habit to use a simple 2D image which will help you to find areas of the object that need more work and adjustments. In fact, the most common problem in the texturing task is the so-called "texture stretching". This unpleasant behaviour takes place when the 2D image wrapped onto an object appears "stretched" or distorted all over the object's

Fig.03

Fig.04

Fig.05
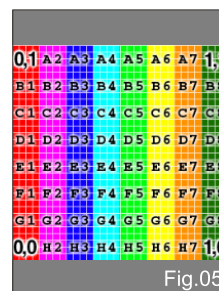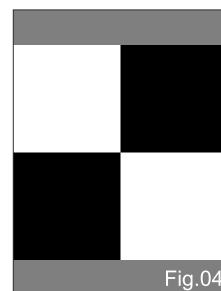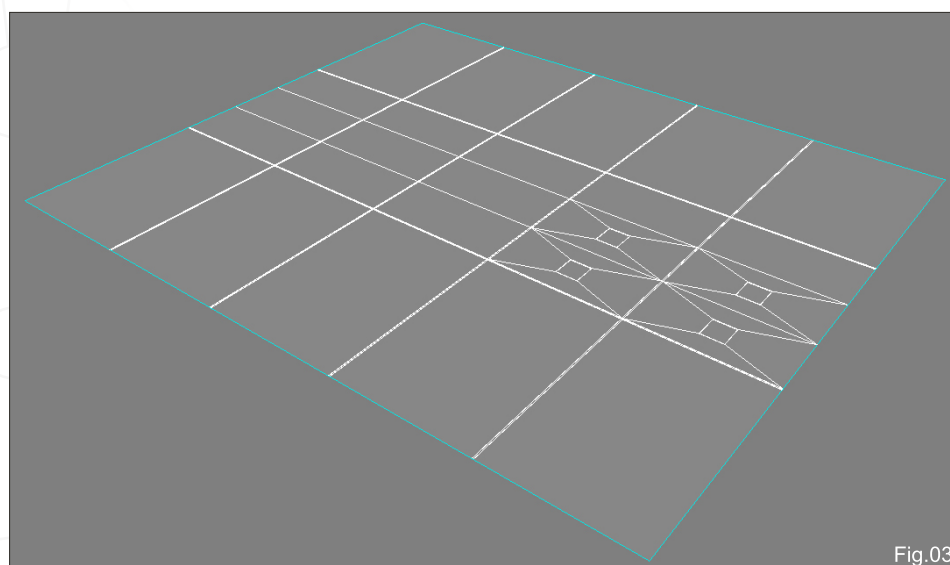
surface, and it's most likely to happen when you're dealing with an irregular solid and with organic forms in general (for example, a 3D character or a sports car).

Usually, the 2D texture used to spot the stretching is a simple checkerboard 2D image (**Fig.04**). Most 3D programs have a procedural checkerboard texture that you can use for this task. XSI has a more complex one, and it looks like this (**Fig.05**).

Using different colours and the small numbered letters (A2, A3, etc.), it helps you to better understand how your texture is being wrapped on the objects, and makes it easier to spot the problematic areas of stretching.

The bigger numbers that you see in this texture (0,1 – 1,1 – 0, 0 and 1, 0) are the so-called "UVs". UVs are just texture coordinates, just like X and Y, and are used to locate a point in the space. The texture starts at UV = 0,0 and it ends
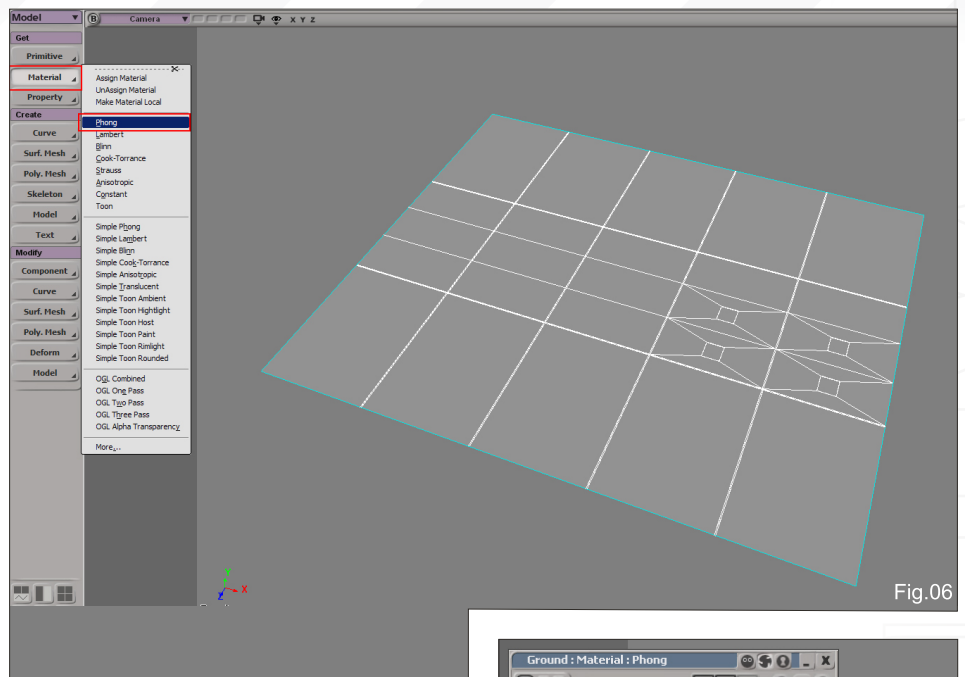
at UV = 1,1 , right in the opposite corner. So UV = 0,1 will be the height, and UV = 1,0 will be the width of the texture. This is useful, especially when you need to "tile" the texture over the object surface.
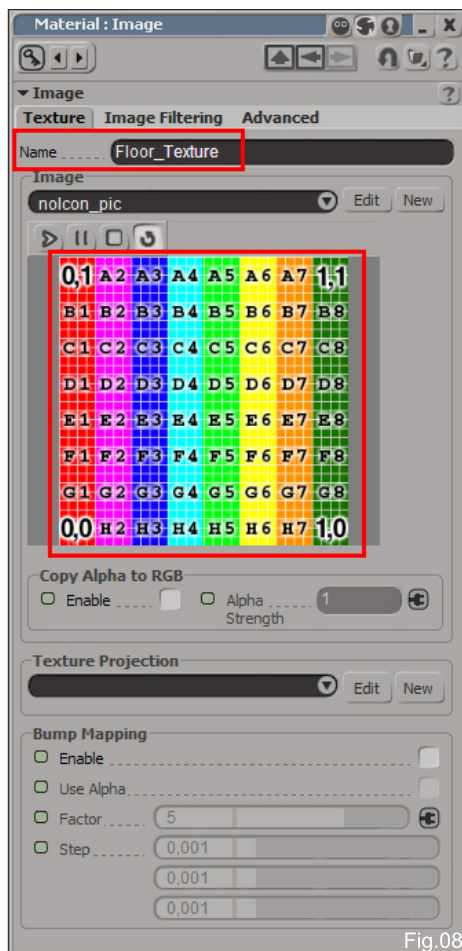
Fig.06
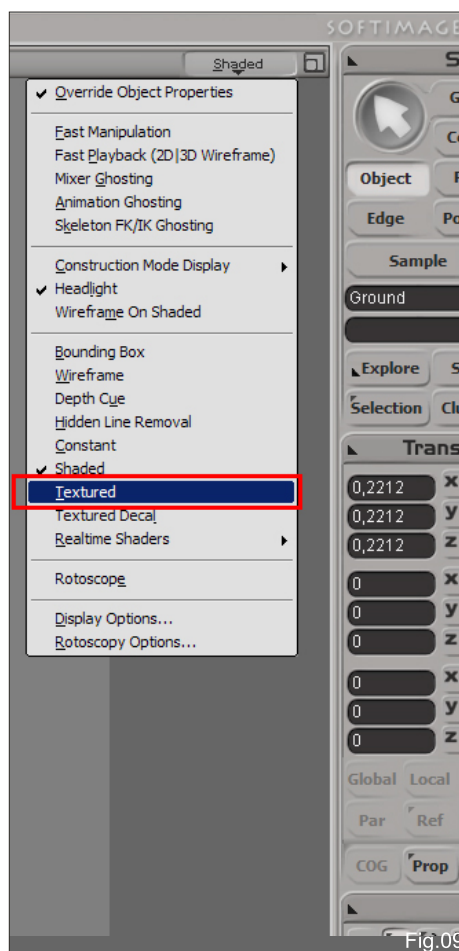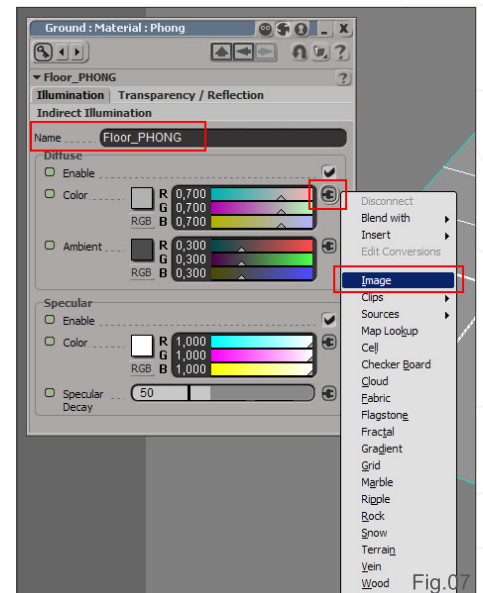
Fig.07

"Tiling" is the process of repeating the 2D texture image a number of times on the surface of an object, as we shall see in the next few steps.

Select the "Floor" object in the scene, and assign a new phong shader to it, as shown in **Fig.06**.

In the phong property page, assign a meaningful name for the shader (for example, Floor_ PHONG... this will be particularly helpful when the scene is cluttered with a lot of different shaders, textures and materials), then click on the plug icon next to Color and choose Image from the list (**Fig.07**).

Fig.08

Fig.09

A new image property page will pop up. Assign a name for the image (for example, Floor_TEXTURE). As you may notice, XSI will automatically generate and assign a generic texture image to the object (**Fig.08**).

Now go back to our scene and change the display mode for the viewport to "Textured", as shown in **Fig.09**.

You may expect to see the textured object in the viewport, with the texture shown on its surface. But the object still appears to be un-textured. This happens because we did not create a UV set for the floor object yet, so we need to do it now.

With the floor mesh still selected, create a new planar mapping from the Properties > Texture Mapping > Planar XZ menu (**Fig.10**).

And here we are: now we have our floor mesh with its texture preview in the viewport (**Fig.11**).

Why did we use the XZ projection? It's simple: the XZ projection is one of the planar projections in the list; X and Z express the axis needed to draw a plane for the projection. If you look carefully at the viewport, you can notice a little
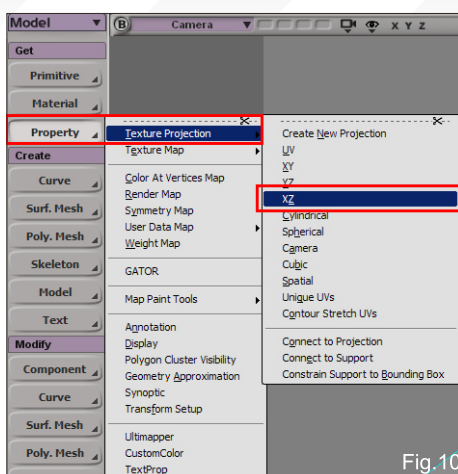
Fig.10
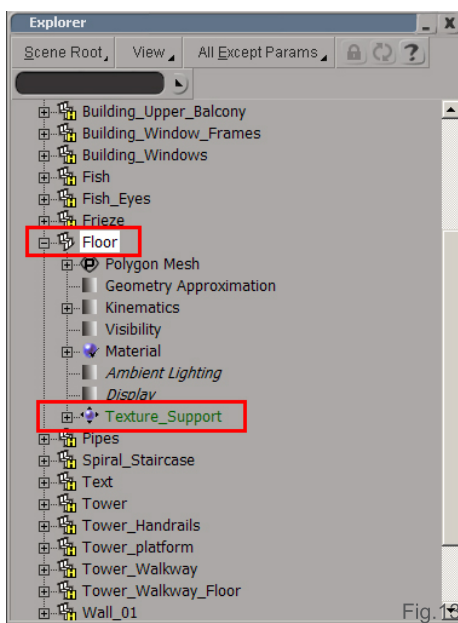
Fig.11

Fig.12

Fig.13
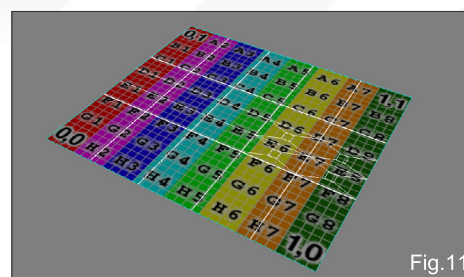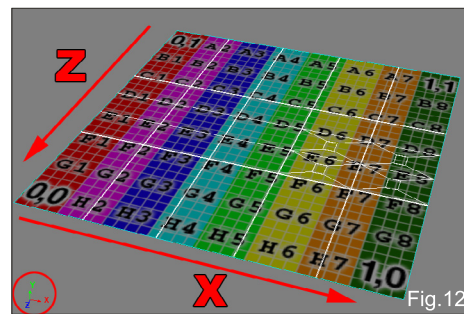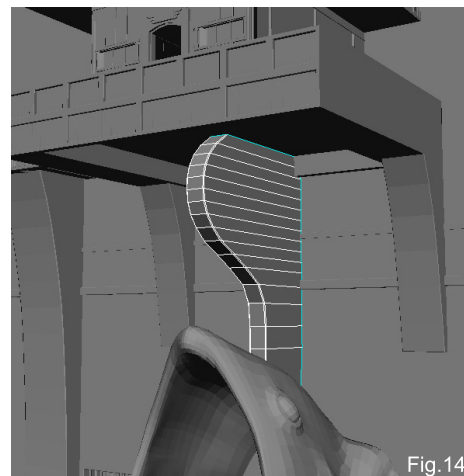
Fig.14
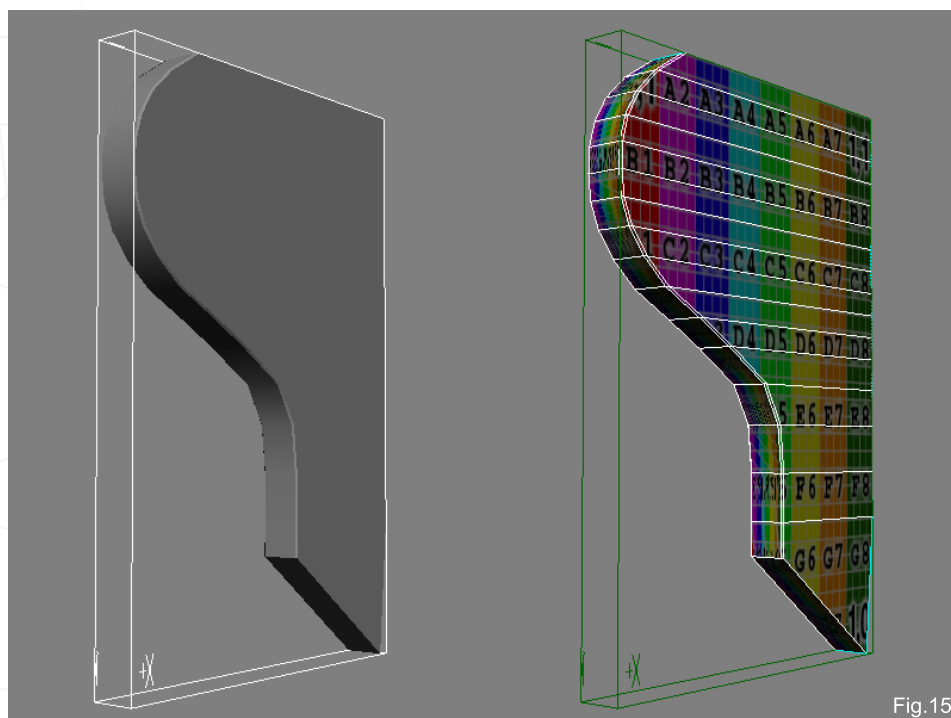
axis indicator in the bottom left corner (**Fig.12**). If you take a closer look at the floor object in the XSI Explorer window, everything will be much clearer. The floor object now contains a new node within itself: Texture Support. This was generated by the XZ Planar projection (**Fig.13**):

If you double-click on this node, you can access its properties; from here you can change the type of projection or the axis (in case you chose the wrong ones in the projection's creation phase). In the next part of the tutorial (which will deal with textures creation), we'll see how to adjust the tiling of a texture.

Let's go on and pick another object in the scene: the Building_Support (**Fig.14**):

Fig.15

Isolate this mesh by hiding all other objects in the scene (Shift + Ctrl + H). Assign a new phong shader to it, and call it BuildingSupport_PHONG. Assign the no_Icon.pic texture image to the phong shader, just like for the floor. The Building_Support mesh has a more complex shape than the floor, but as you may notice its volume is vaguely cubic. So the starting projection type we need to apply is Cubic Projection. With the object still selected, choose "Cubic" from the Property > Texture Projection menu (**Fig.15**):

Now, since the sides of the Building_Support are nothing more than flat planes, the texture appears correctly wrapped on these parts of
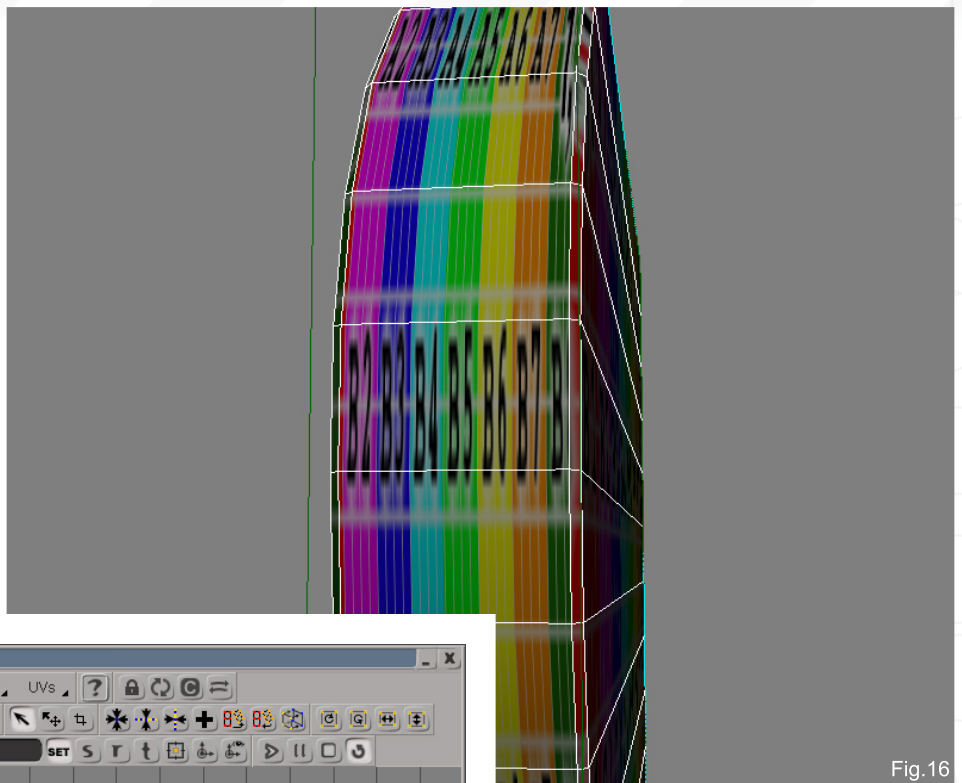
Fig.16

the mesh. But if you look closely at the front part of the mesh, you can find our first "texture stretching problem" (**Fig16**).

To fix it, we need to open the Texture Editor (Alt + 7) and edit the Building_Support UVs. Once you open the Texture Editor (with the Building_Support object still selected) this is what it looks like (**Fig17**).
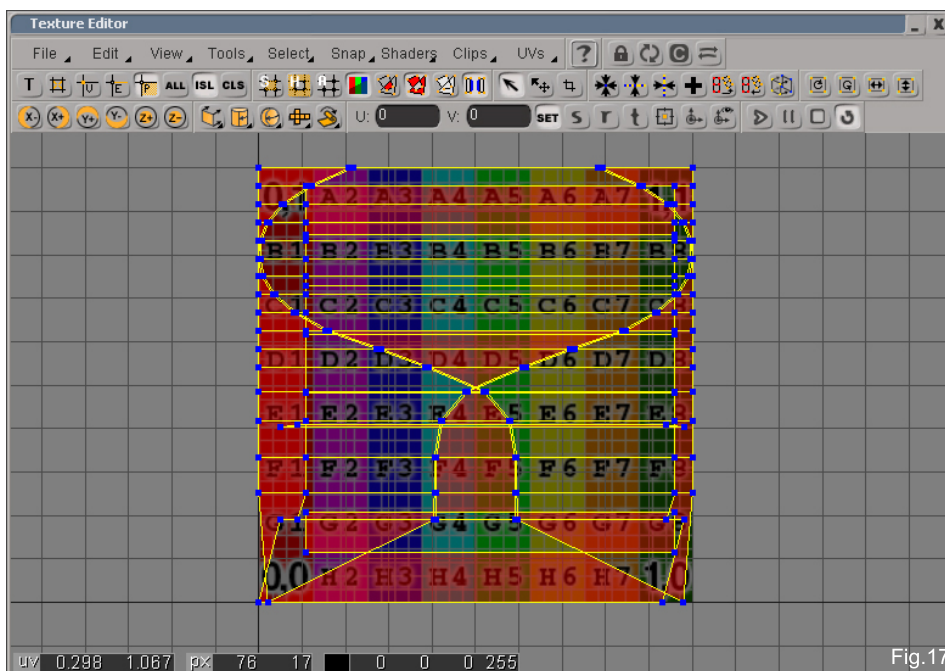
Fig.17

The UVs are condensed all together, creating some clutter. In this way, we cannot spot the stretching problem and fix it, so we need to make things clearer and create some sort of order in the UVs. Go back in the viewport and switch to the raycast polygon selection mode (U) and select all the polygons from one side of the mesh (**Fig.18**).
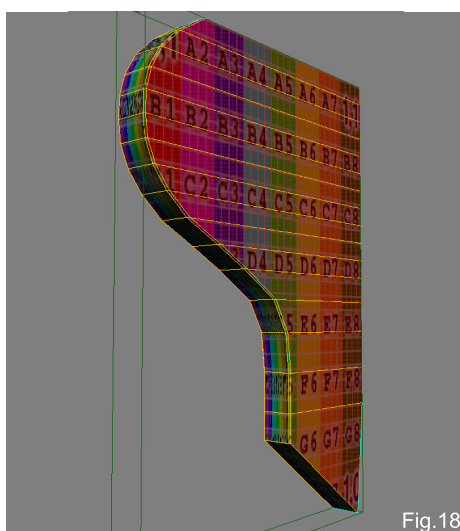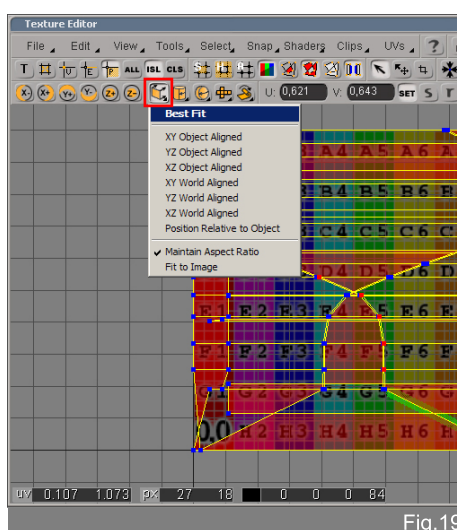
Go back to the Texture Editor, click on the Planar SubProjection icon and choose Best Fit (**Fig.19**).

A new planar subprojection will be created for the selected polygons, and XSI will automatically choose the best planar projection (XY, YZ or XZ) for you. Now using the Translate

Fig.18

Fig.19

tool in the Texture Editor, move aside the subprojected UVs we've just created (**Fig.20**).

Select the polygons from the opposite side of the mesh, and repeat the last few steps to create a new planar subprojection for them,

too. Once it's done, move them aside as well (**Fig.21**).

Now that we have isolated the co-planar polygons of the mesh, what remains are the UVs which have the texture stretching problem
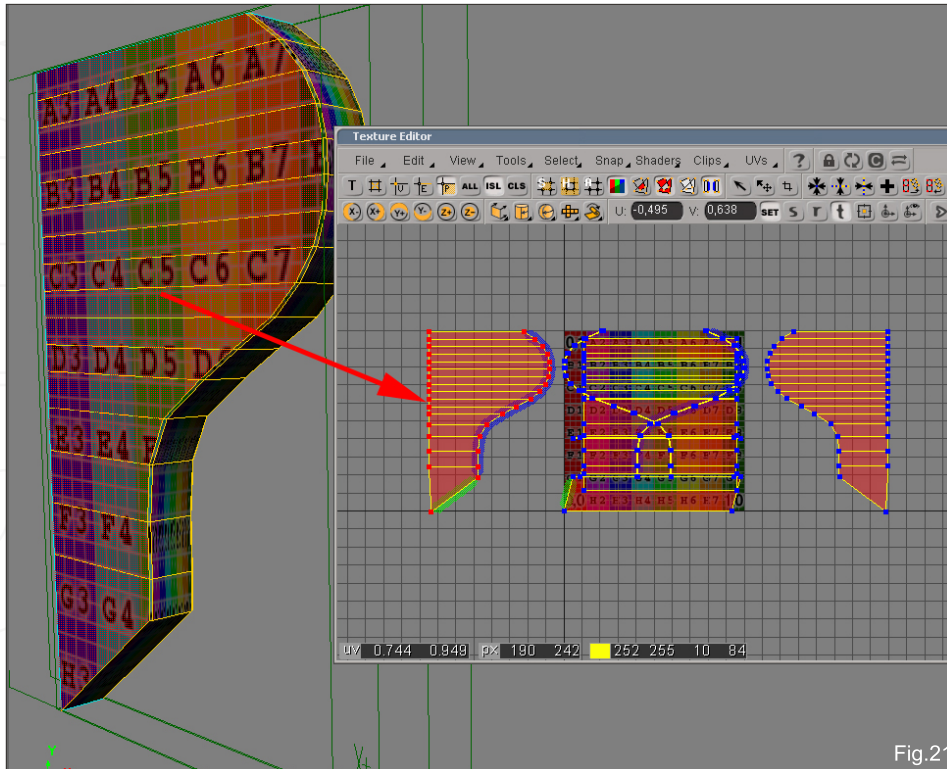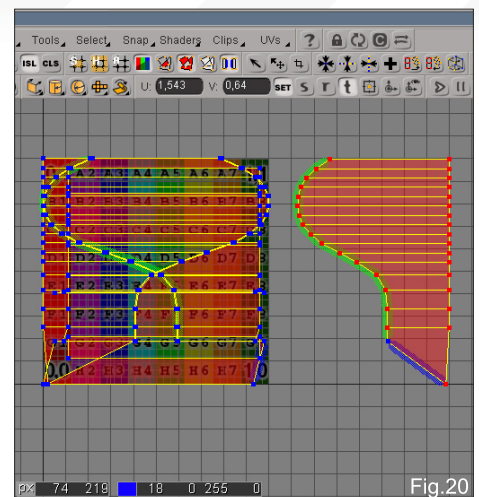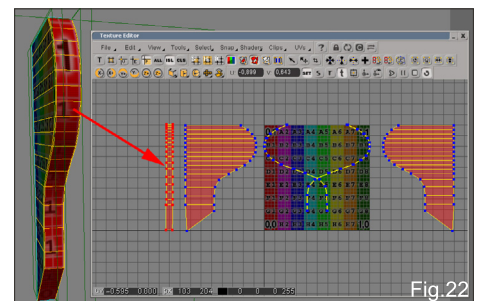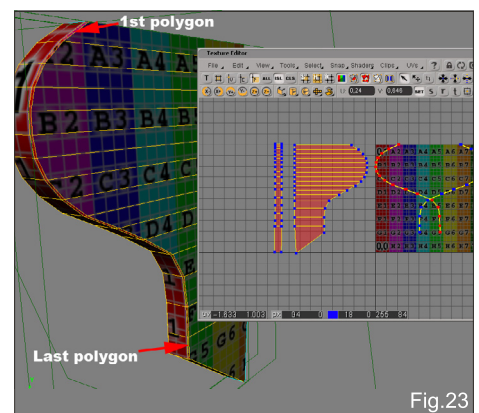

Fig.20

Fig.21

Fig.22

Fig.23
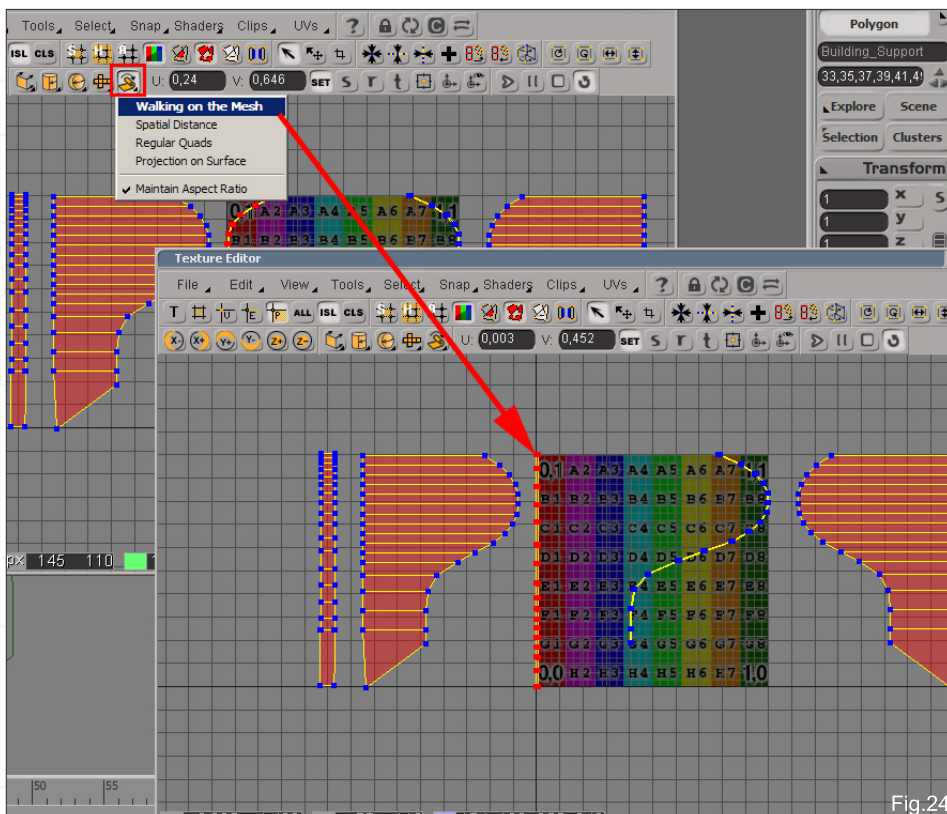
(in particular, the front part of the Building_ Support and the small beveling at its sides). Select all the front polygons in the viewport (excluding the beveling) and apply a new planar subprojection in the Texture Editor, choosing Best Fit (**Fig.22**).

Now let's fix the bevelling polygons. Select the first polygon shown in **Fig.23**, then keep the Alt key pressed, and middle-click on the last polygon shown in **Fig.23**; XSI will automatically select all the polygons in-between.

Now click on the ContourStretch Subprojection icon, and choose Walking on Mesh. Right-

Fig.24

click to end the picking session (since we have already selected the polygons we want, we don't need to pick any others) and XSI will automatically unwrap the UVs in a straight and linear shape (**Fig24**).

Now repeat the last steps for the remaining polygons, using the ContourStretch subprojection for them too. Finally, rearrange the UVs islands that we've created (**Fig.25**).

In the fifth part of the tutorial we'll see how to reshape and adjust UVs according to the texture we'll be using. The goal for now was to eliminate the clutter in the UVs and fix the stretching problem.

If you now go back in the viewport and select the Building_Support object, you will see that it now has projection supports all around; those were created by using sub-projection tools. Once you have finished editing UVs, you can

freeze the history using the opposite button in the XSI's interface, and the supports will disappear. UVs you have edited will off course remain as they are, and you can check it out in the Texture Editor (**Fig.26**).

Now let's proceed with another complex object in the scene: the TowerWalkway. This mesh is composed of several groups of small, similar objects, repeated all over. For example, in **Fig.27** you can see the small ornamental cylinders which are repeated at intervals on the vertical iron bars.

In cases like this, although there is a way to cut and paste UVs from polygons to other polygons, it's better to work on one instance of the mesh, and duplicate it to create clones. In order to do this, we have to detach one small cylinder, work on its UVs, and then clone it all over, deleting the old cylinders and substituting them with clones of the textured ones.
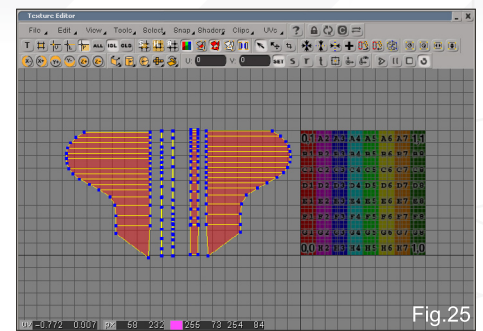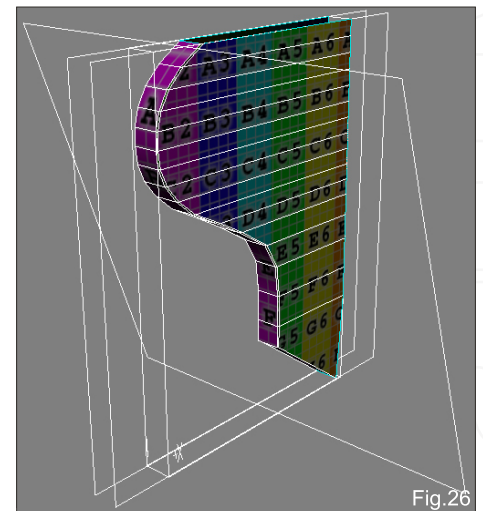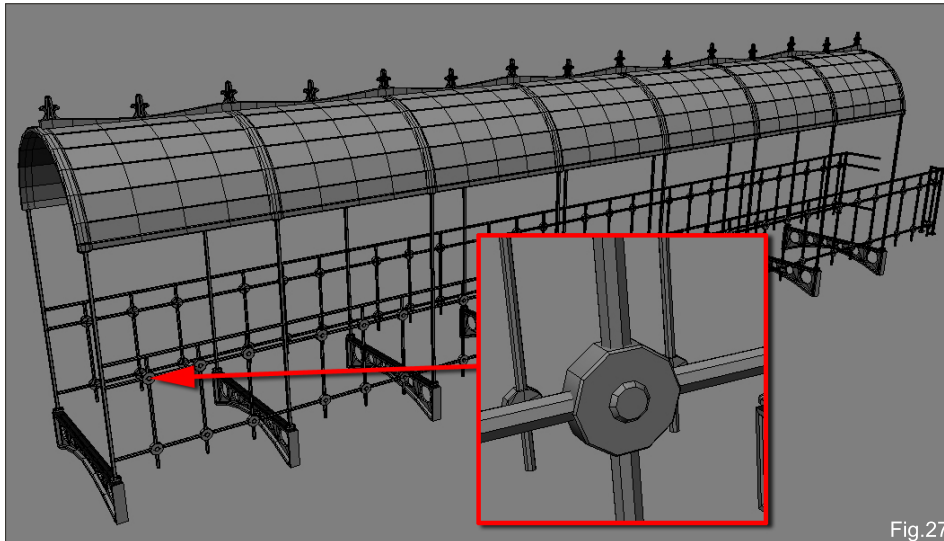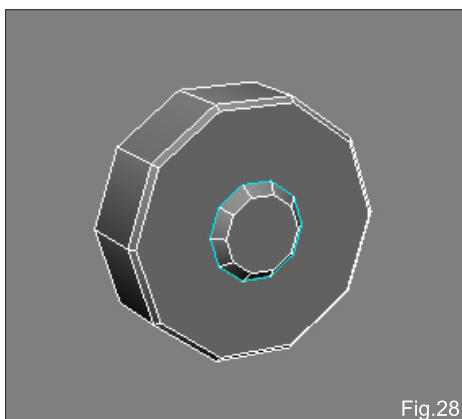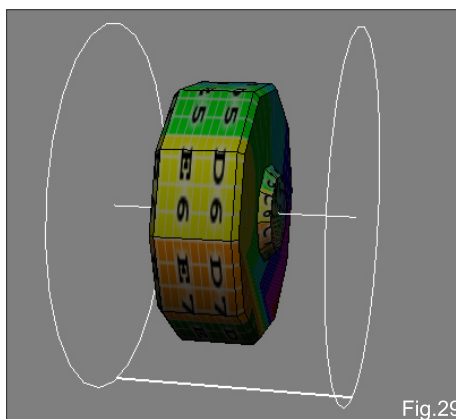

Fig.25

Fig.26

Using the Polygon Island mode, select the first cylinder on the left, then right-click on it and choose Extract (Delete) from the menu. Select the new mesh and hide everything else in the scene (**Fig.28**).

Create a new phong shader for the cylinder and assign a new no_Icon texture to it. Name them respectively TowerWalkway_PHONG and TowerWalkway_TEXTURE. Create a new cylindrical projection and rotate the cylindrical Texture Support as shown in **Fig.29** (if needed).

The mesh was cylindrical in shape, so we chose the cylindrical projection as a starting point. Now open the Texture Editor, select the polygons shown in **Fig.30** and apply a new planar (Best Fit) sub-projection to them.

Now do the same with the rest of the polygons: select the back-side ones and apply a planar subprojection; then select the ones in the middle of the mesh and just scale them a little, to make the texture fit better on them (no new subprojection is needed in this case, since

Fig.27

Fig.28

Fig.29

we can use the main cylindrical projection we created at the beginning) (**Fig.31**).

Now we have one instance of the ornamental cylinders with the UVs fixed; don't worry about the disposition of it's UVs in the texture editor, we'll come back to them in the next part of the tutorial. For now, we just want to fix UVs stretching.

Fig.30

Fig.31

Fig.32

Fig.33

Fig.34

Fig.35
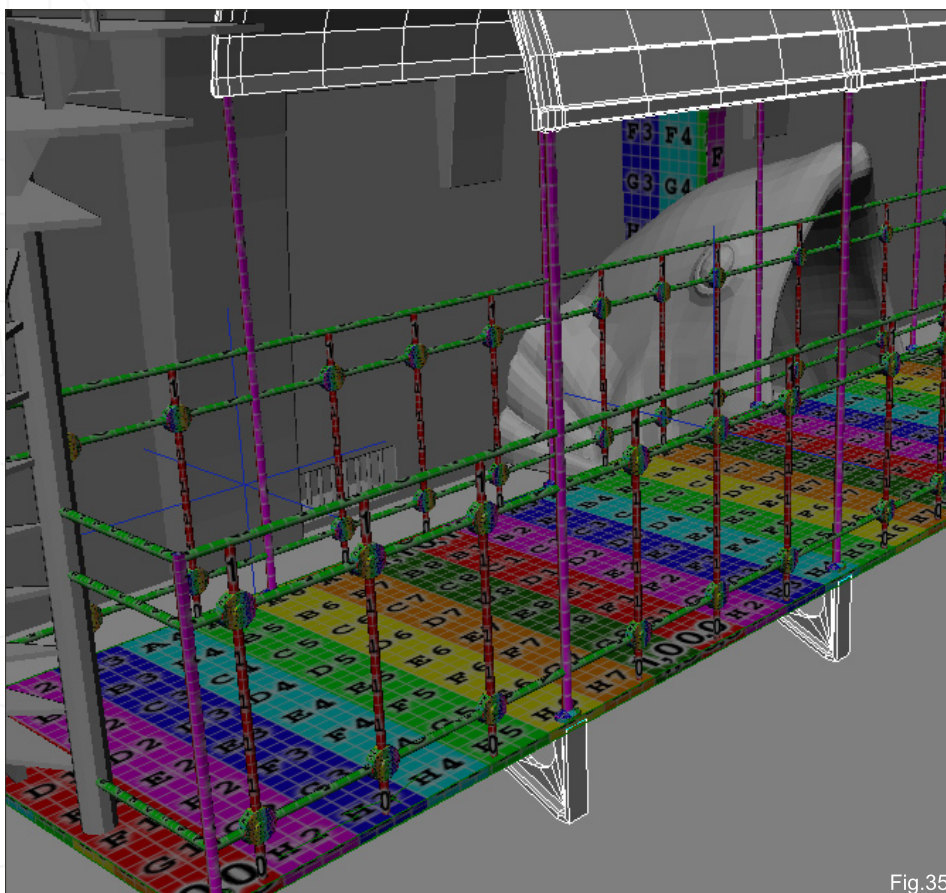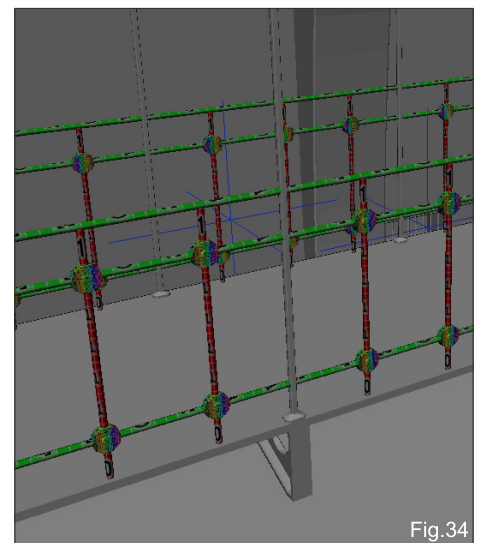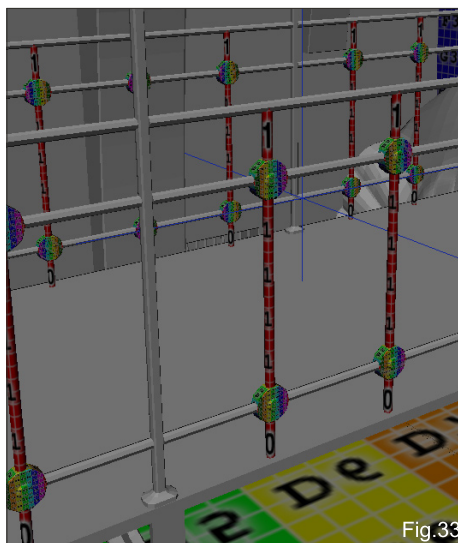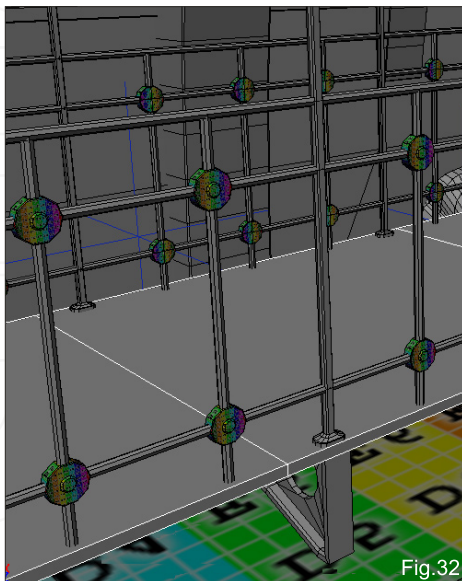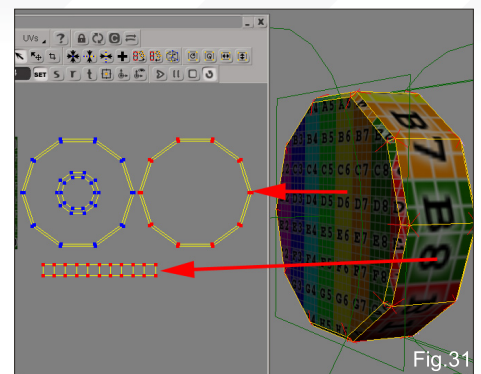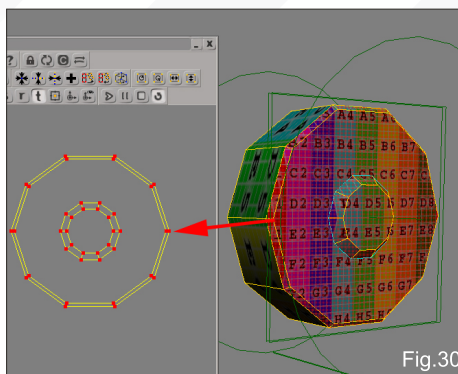
Un-hide the TowerWalkway object and delete all the old ornamental cylinders; create clones of the textured one, as shown in **Fig.32**.

Now let's do the same with the smaller vertical iron bars. Detach one of them, assign the same material as the ornamental cylinders (every component of the walkway will of course have the same TowerWalkway_PHONG material assigned in the end). Then assign a cylindrical projection and check if there's any stretching in the Texture Editor. Once you're done, delete the old vertical bars and create clones of the textured one (**Fig.33**).

Now go on with the horizontal iron bars (**Fig.34**).

In the same way, create UV projections for the vertical, bigger bars and for the TowerWalkway_ Floor as well (**Fig35**).

Now select one of the supports beneath the walkway floor and detach it (**Fig.36**).

Assign the same material as for the rest of the walkway structure's elements. This time we'll use a different kind of projection: Unique UVs. This particular type of projection creates unique UVs for each polygon of the mesh, thus avoiding UVs overlapping. There are different ways in which Unique UVs work, but the most common is by dividing the polygons by their angle. The user specifies an angle, and all the UVs of polygons sharing the same angular value will be grouped together. But let's see a practical example of this: with the support mesh still selected, create a new Unique UVs projection. Then open the Texture Editor and take a look (**Fig.37**).

The picture should be quite self-explanatory: the UVs were packed and organized in a clear
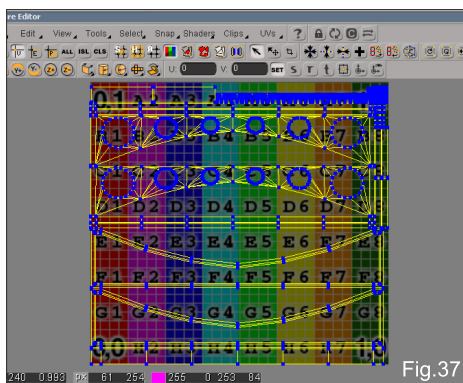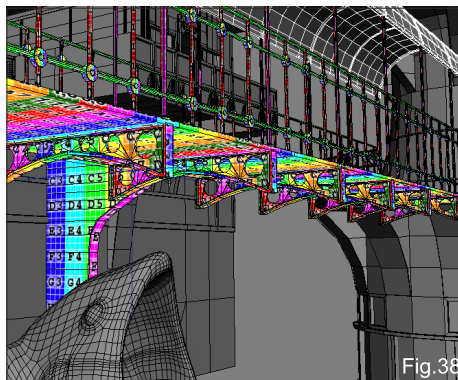
Fig.36

Fig.37
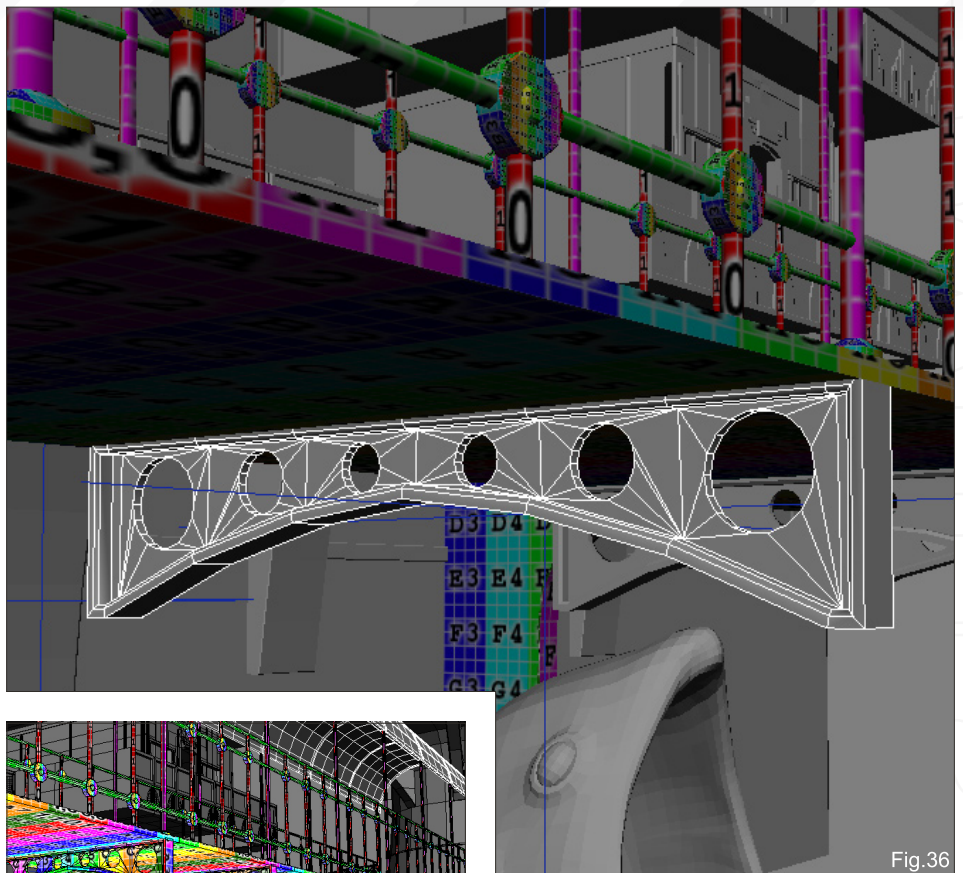
Fig.38

way by the Unique UVs projection. There is still some clutter (especially in the top right corner of the texture space), but we will take care of it in the next part of the tutorial, when we will create the texture image and re-organise the UVs accordingly.

Now duplicate the textured walkway support and delete the old un-textured ones (**Fig.38**).

Select the remaining part of the walkway and repeat the last few steps: assign the same material as before and create Unique UVs for it, too (**Fig.39**).
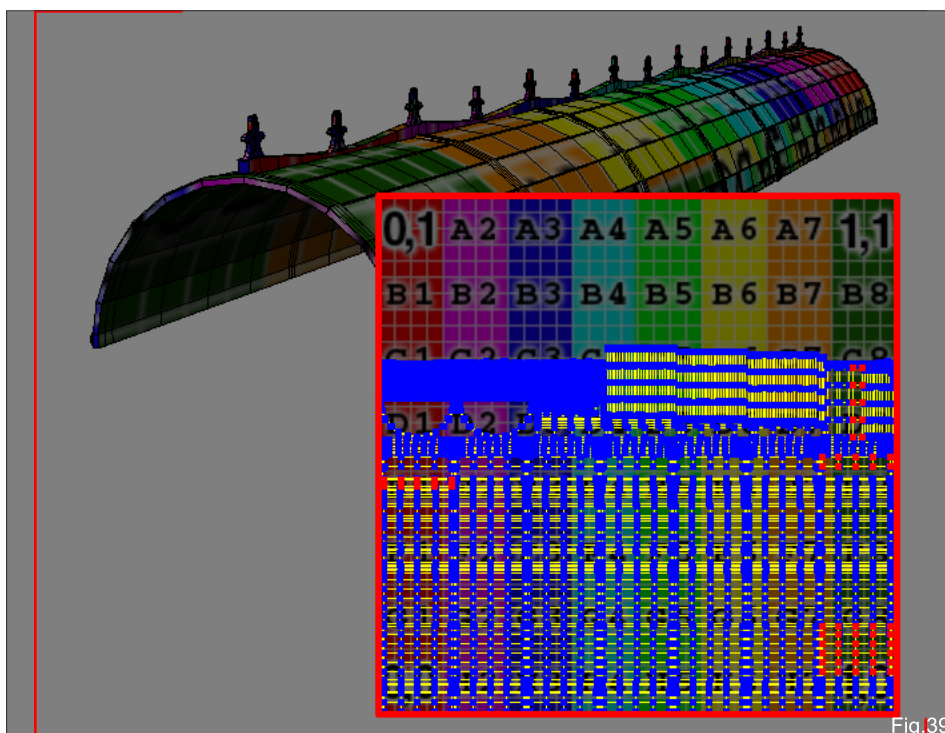
Now that we have created generic UVs for every single element of the walkway, we need to re-attach them together in one mesh. Select any of the pieces and use the Polymesh > Merge command: a picking session will begin. Just click on any other piece of the walkway (you can do it directly in the viewport, or better you can use the practical XSI Explorer to pick them from the list). Once you have finished picking all the elements, right-click in the viewport to

Fig.39

end the picking session; the Merge property page will pop up. Set the Tolerance value to 0, click on Merge button under "Materials, UVs, Vertex Colors, Weight Maps" and then click on the Delete button under "Inputs" to erase the old meshes (**Fig.40**).

Don't forget to rename the new mesh "TowerWalkway", since the name may have been lost in the Merge operation. Everything is

now merged into one single mesh, and this goes for the UVs, too. If you open the Texture Editor with the newly created TowerWalkway mesh selected, you will notice that all the UVs of the different elements were packed together, and now there is some clutter in the Texture Editor again. Just activate the ISL icon in the Texture Editor (this will allow you to select entire blocks of similar UVs) and re-arrange the pieces in a clear way, just as shown in **Fig.41**.
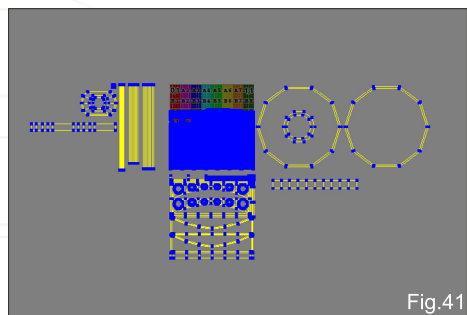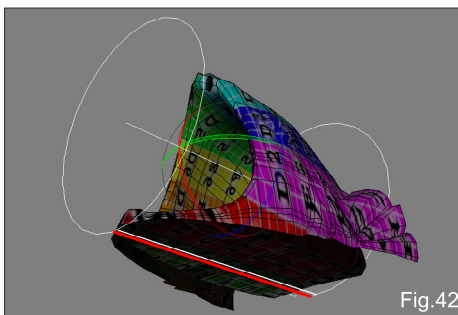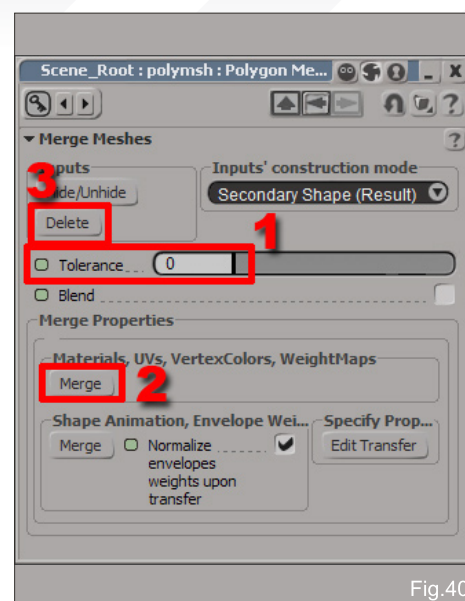

Fig.40

Fig.41

Fig.42

Fig.43

Off course this won't be the final disposition for the UVs. We will change it again later, in the next part of the tutorial, when we will create the actual texture image for the walkway and all the other object in the scene.

Now you should be able to create UVs and arrange them, fixing the stretching problems, for every other mesh in the scene. But maybe there is still one object that may look difficult to unwrap: the big fishy head. So let's see how to unwrap this last object.

Select the mesh, assign a new Fish_PHONG shader and assign a new Fish_TEXTURE image to it. Then create a new cylindrical projection. Also, rotate the cylindrical projection's Texture Support, as shown in **Fig.42**.
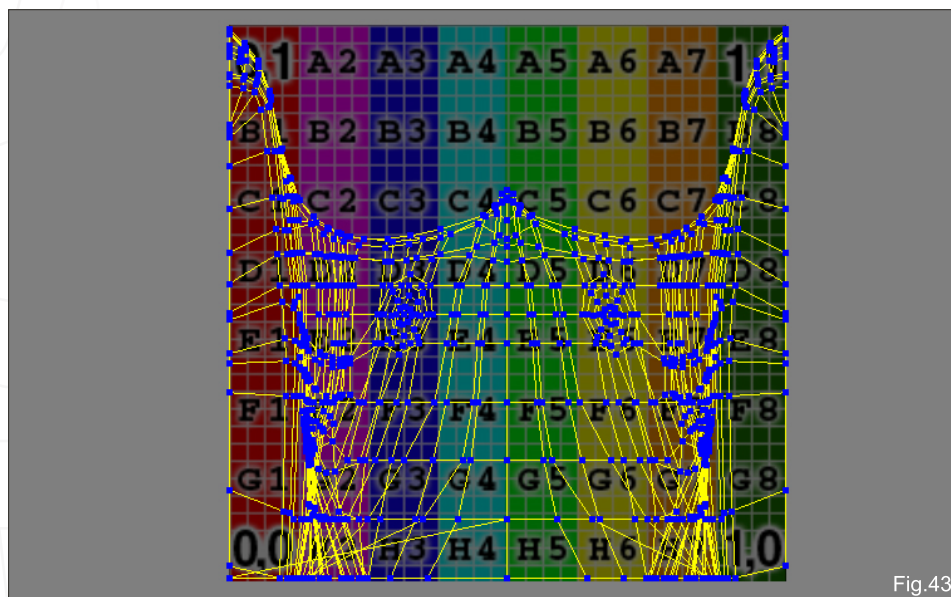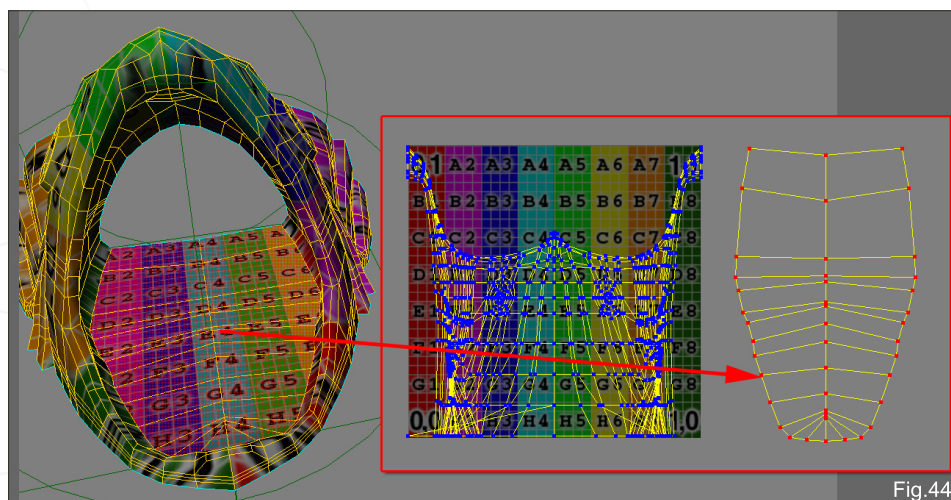
Make sure that the Texture Support's seam (marked in red in the previous picture) falls right in the lower part of the mesh. Now open the Texture Editor (**Fig.43**):

There are some messy UVs here - we have to work on them and fix the problem. Mostly, there is some clutter because of the shape of the fish head: it has an outer and an inner part, so the cylindrical projection is overlapping their UVs. Let's select all the inner polygons shown in **Fig.44** and assign a new Planar (Best Fit) sub-projection. Now select all the inner polygons

Fig.44

shown in **Fig45**, and assign a new cylindrical (Best Fit) sub-projections to them (**Fig.45**).

Rotate and scale the cylindrical sub-projection's Texture Support in the viewport, keeping an eye on what happens in the Texture Editor. Just try to create something similar to **Fig.46**.

We have split all the head's UVs into three main components (**Fig.47**).

One last thing we need to see for this part of the tutorial is how to export UV layouts into Photoshop. In the next part of the tutorial, we'll go back to refine some objects' UVs before exporting them; but for now, let's just see how the exporting process works.

Let's take the Building_Support object as an example: open the Texture Editor and make sure that all of the UVs reside into the texture space (marked in white in **Fig.48**). In fact, every other UV piece outside of it will just be ignored in the exporting process.

Now use the Edit / Stamp UV Mesh tool: a browser window will open to let you choose where to save the image. Just save it into the project's folder (for example, in the Pictures subdirectory), and choose any picture format you like (.TGA, .BMP, etc.) (**Fig.49**):

Once you've saved the picture, the program will ask you if you want to replace the current texture into the Texture Editor; if you click on Yes, the newly created UV stamp will be displayed (**Fig.50**)

In this way, you will be able to work on the texture in Photoshop, using the UV stamp as a guide, and watch the results into the Texture Editor (and in the viewports and rendering, too).
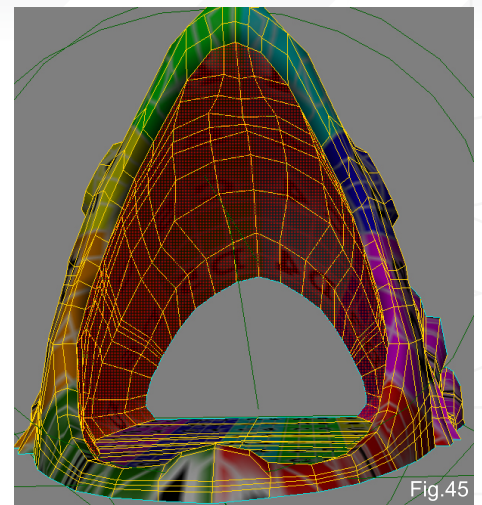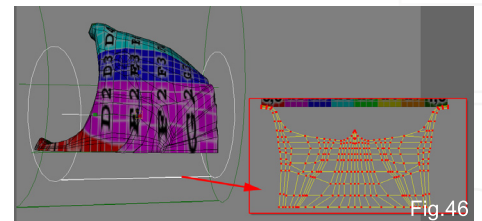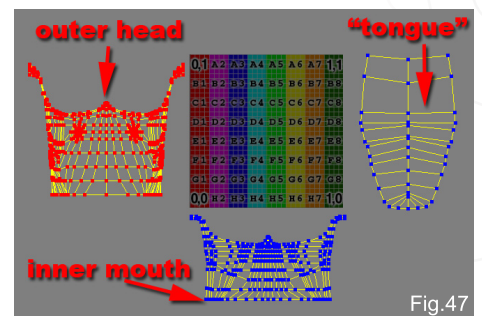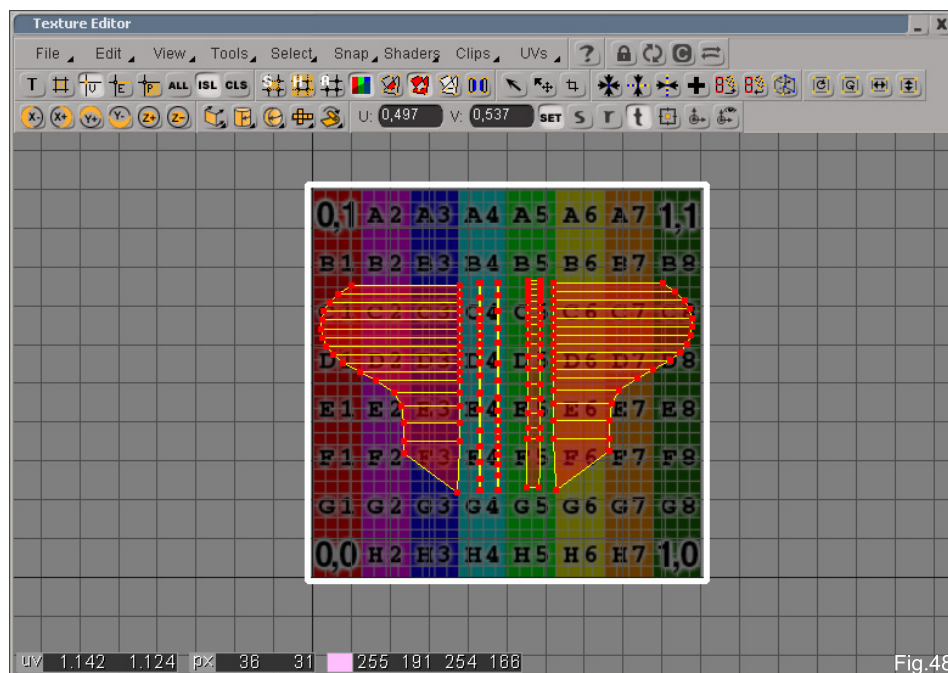

Fig.45

Fig.46

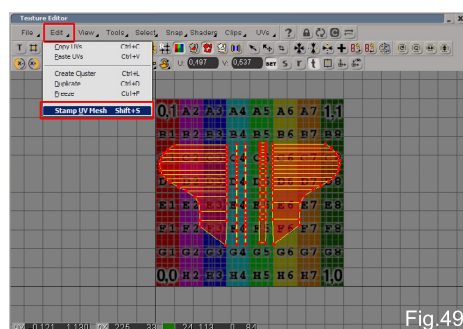outer head — "tongue" — inner mouth
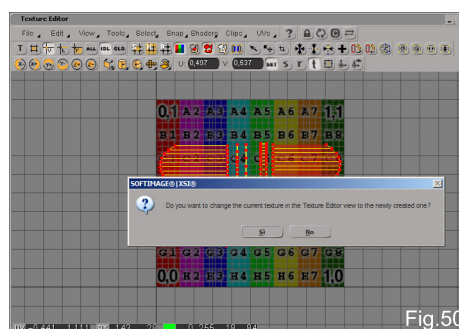Fig.47

Fig.48

Fig.49

Fig.50

AGED & WEATHERED ENVIRONMENT
CREATING A COMPLETE SCENE FROM CONCEPT TO RENDER
PART 4: MAPPING

LUCIANO IURINO

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